

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

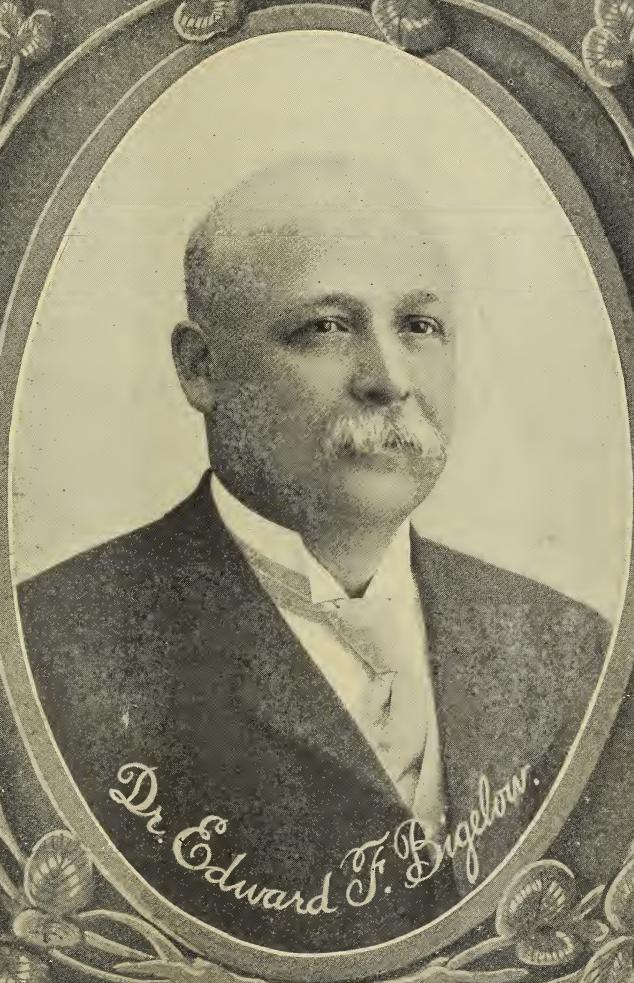
58.17
3C VOL. XXXIV

JUNE 15, 1906

NUMBER 12

GLEANINGS

IN BEE CULTURE



Dr. Edward F. Bigelow.

THE A. I. ROOT CO.
MEDINA, OHIO

Western Edition

Entered at the Postoffice, Medina, Ohio, as Second-class Matter

North Texas Beekeepers

will find Dallas the best point from which to purchase supplies. We have a carload of ROOT'S GOODS in stock, and sell them at Factory Prices. Don't forget that we can furnish anything in the way of field or garden seeds, plants, and poultry supplies. Large illustrated catalog for 1906 free on application. Mention *Gleanings* when you write. Wish to purchase Beeswax.

Texas
Seed and Floral Co.
Dallas, Tex.

SPRINGFIELD MISSOURI

We carry a large and complete stock of The ROOT'S 1906

BEE-SUPPLIES

All orders filled same day as received, thus insuring for our customers quick service, Springfield freight rates,

FACTORY PRICES

Send for seed catalog, bulb and plant catalog, Cyphers incubator catalog, The A. I. Root Co. bee-supply catalog

SPRINGFIELD SEED CO.
Springfield, Mo.

MR. TEXAS BEE-KEEPER

I would like to talk to you *personally*.

First, I want you to know about my supplies. I handle Root's Goods, of course; for I believe in giving my customers complete satisfaction—for that's better in the long run than low prices. My place of business is on the S. A. & A. P. Ry., just opposite the passenger depot, where I have built a warehouse 40×250 feet, and I have filled it full to the brim, for I handle Root's goods by the carload. This means I can furnish you supplies with the utmost promptness.

Then, too, I have installed a complete Weed-Process Foundation factory. I can turn out 500-lbs. a day. I can work your wax into foundation. In fact, my facilities in this line are not surpassed in Texas.

My can business is increasing by leaps and bounds. That is because of the quality of the goods. It will save you dollars to get my prices. Better write for them to-day.

Nothing pleases me better than for bee-keepers to make their headquarters at my office when at San Antonio. You are *always* welcome. I have fitted up my office with plenty of desks and chairs, with writing material, a reading-table, and all the bee journals on hand. Consider yourself invited.

If you haven't my catalog just drop a postal.

After the 15th or 20th of April I can supply Red-clover and Golden Italian queens promptly.

I am now paying 25c cash and 28c in trade for average clean beeswax delivered here. Save your slumgum. I will buy it. Let me know how much you have, in what condition the slumgum is, and in what kind of an extractor it was rendered, and I will make you price I am paying.

Call or Address

Udo Toepperwein - San Antonio, Texas

1322 South Flores Street

C. H. W. Weber,

Headquarters for

Bee - Supplies.

Distributor of Root's Goods Exclusive-
ly, at Root's Factory Prices. o o

Give me your order for the BEST GOODS MADE. You will be pleased on receipt of them. You will SAVE MONEY by ordering from me. My stock is complete; in fact, I keep EVERY THING the BEE-KEEPER needs. CINCINNATI is one of the best SHIPPING-POINTS in the Union, PARTICULARLY IN THE SOUTH, as all freight now GOES THROUGH CINCINNATI. Satisfaction guaranteed. Send for descriptive catalog and price list. It will be mailed you promptly FREE of charge.

I will buy your HONEY AND BEESWAX. I pay CASH ON DELIVERY; or, if you are in NEED OF HONEY, write for prices and state quantity wanted, and I will quote you the lowest price of any quantity wanted—in cans, barrel-lots, or car-lots—of EXTRACTED or COMB HONEY. I guarantee its purity.

QUEENS AND NUCLEI.

Let me book your order for queens. I breed the finest GOLDEN ITALIANS, RED-CLOVERS, CARNIOLANS, and CAUCASIANS. Can furnish NUCLEI beginning of June. For prices, refer to catalog, page 25.

I have in stock seeds of the following honey-plants: White and Yellow Sweet-scented Clover, Alfalfa, Alsike, Crimson Clover, Buckwheat, Phacelia, Rocky Mountain Bee-plant, and Catnip.

C. H. W. WEBER,

Office and Salesroom, 2146-2148 Central Ave.
Warehouse, Freeman and Central Avenue.

Cincinnati, - Ohio.

Honey Market.

GRADING-RULES.

FANCY.—All sections to be well filled, combs straight, firmly attached to all four sides; the combs unsealed by travel, except for the top; all the cells sealed, except an occasional cell, the outside surface of the wood well scraped of propolis.

A. NO. 1.—All sections well filled except the row of cells next to the wood; combs straight; one-eighth part of comb surface soiled, or the entire surface slightly soiled. The outside of the wood well scraped of propolis.

No. 1.—All sections well filled except the row of cells next to the wood; combs comparatively even; one-eighth part of comb surface soiled, or the entire surface slightly soiled.

No. 2.—Three-fourths of the total surface must be filled and sealed.

No. 3.—Must weigh at least half as much as a full-weight section.

In addition to this the honey is to be classified according to color, using the terms white, amber, and dark; that is, there will be "Fancy White," "No. 1 Dark," etc.

TOLEDO.—The market in comb honey remains rather quiet. Stock is pretty well cleaned up now. On account of the strawberry season, demand is very light. Fancy white clover would bring 16; No. 1, 15. Extracted white clover in barrels brings 6½ and 7; cans the same; amber in barrels brings 5 to 5½; cans the same. Beeswax is firm at 28 and 30.

GRIGGS BROTHERS,
Toledo, Ohio.

CHICAGO.—The honey market is in about the same condition as when we last quoted; very little call for either comb or extracted. White comb, No. 1, 15; other grades, 10 to 14. Extracted white, 6½ to 7; amber, 5 to 6. Beeswax, 30.

R. A. BURNETT & CO.,
199 South Water St., Chicago, Ill.

MILWAUKEE.—We continue to quote honey, fancy 1-lb. sections, 16 to 18; off grades nominal, 8 to 10; extracted in barrels, cans, and pails, free from acid, 7 to 8; amber dark, nominal, 6 to 7. Beeswax, 26 and 30.

May 27. A. V. BISHOP & CO.,
119 Buffalo St., Milwaukee, Wis.

KANSAS CITY.—The honey market here remains a little dull on account of there being very little honey here, and no demand. We believe the first new honey will sell at \$3.25 to \$3.50, for 24-section white comb. Some little honey is beginning to move now. Extracted is dull, and price cuts very little figure in movement of same.

C. C. CLEMONS & CO.,
Kansas City, Mo.

PHILADELPHIA.—There is no new honey arriving in this market as yet, and so few lots of old honey sold that we can not establish any price. Some little lots of Southern extracted honey have arrived in barrels. We quote: New Southern honey, light amber, 6½; amber, 6. Beeswax selling freely at 29. We are producers of honey and do not handle on commission. WM. A. SELSER,

June 11. 10 Vine St., Philadelphia, Pa.

ATLANTA.—As the season advances it develops that there is a better crop than was first reported. Comb honey is coming more freely; however, we are finding a ready market for it at the following prices: Fancy white, 12½ to 14; A No. 1, 12 to 13; No. 1, 10 to 11. Extracted is going slowly at 6½ to 7 for white, and about 1 ct. less for amber. Beeswax, 28 to 30.

JUDSON HEARD & CO.,
Atlanta, Ga.

June 11.

BUFFALO.—There is very little demand for honey now. There is no white comb here. If there were it would sell well at about 15; some candied and No. 2, also some dark comb here; but trade buys only a little when forced to get some. There will not be much more trade for honey until new commences to come.

June 13.

W. C. TOWNSEND, Buffalo, N. Y.

ST. LOUIS.—Since our last there is no change noticeable in our honey market. It is very dull on all grades except that there is a good demand for choice new comb honey. We quote: Fancy white comb, 14 to 14½; No. 1, 13 to 13½; amber 12 to 12½; extracted California light amber, 6 to 6½, according to condition and quantity; Spanish needle, 6½ to 7; Southern in barrels, old, 4 to 4½; new, 4½ to 4¾; in cans, 5 to 5½ for old, and 6 for new. Beeswax, prime, 29½; all impure and inferior, less.

R. HARTMANN & CO.,
St. Louis, Mo.

June 12.

DETROIT.—Very little honey in market, and demand is light; but prices are ruling rather high. Comb honey, A No. 1 and No. 1, 16; extracted, 7 to 7½, with very little demand. Beeswax, 28 to 30c. No prospect of any change until new crop is in.

M. H. HUNT & SON,
Bell Branch, Mich.

FOR SALE.—Thirty 5 gallon cans of clover honey. Single can, 7½ cts. per lb.; two or more at 7 cts.

C. J. BALDRIDGE, Homestead Farm, Kendal, N. Y.

FOR SALE.—Fourteen cases amber honey in new five-gallon tins, candied solid; price 5 cts.

C. E. FOSS, Alpine, San Diego Co., Calif.

FOR SALE.—Extracted honey. Write for prices. State quantity and kind wanted. Samples free.

HILDEBRETH & SEGELEN, New York, N. Y.

FOR SALE.—California light amber, in 60-lb. cans, 5½c; California water-white, in 60-lb. cans, 6¾c; Wisconsin light amber and buckwheat, in 250-lb. barrels, 5c; sample, 10c.

E. R. PAHL & CO.,
294-6 Broadway, Milwaukee, Wis.

FOR SALE.—Superior grades of extracted honey for table use. Prices quoted on application. Sample, 10 cts. to pay for package and postage.

O. L. HERSHISER, 301 Huntington Av., Buffalo, N. Y.

BEE-SUPPLIES.

We handle the finest bee-supplies, made by the W. T. FALCONER MFG. CO., Jamestown, N. Y. Big Discounts on early orders. Let us figure with you on your wants.

MUTH SPECIAL DOVETAIL HIVES have a honey-board, warp-proof cover and bottom-board. Think of it. Same price as regular styles. Send for catalog.

The Fred W. Muth Company, Cincinnati, Ohio
51 Walnut Street

WANTED.—Comb, extracted honey, and beeswax. State price, kind, and quantity. R. A. BURNETT,
199 South Water St., Chicago, Ill.

WANTED.—Fancy white comb honey, also extracted honey in barrels. Send samples, and name best price delivered here. GRIGGS BROS., Toledo, Ohio.

WANTED.—Comb and extracted honey. State quality, quantity, and price. JUDSON HEARD & Co., Atlanta, Ga.

WANTED.—Beeswax. Will pay spot cash and full market value for beeswax at any time of the year. Write us if you have any to dispose of.

HILDRETH & SEEGELKEN,
265-267 Greenwich St., New York.

WANTED.—We will be in the market for comb honey in both local and car lots, and parties having same to sell or consign will do well to correspond with us.

EVANS & TURNER, Columbus, Ohio.

WANTED.—Beeswax. We are paying at this date for pure average beeswax delivered at Medina or any branch office named below, 28 cts. in cash or 30 cts. per lb. in exchange for bee-supplies, less transportation charges. We can not use old combs. Pack securely and address plainly. Be sure to send bill of lading when you make shipment, and advise us how much you send, net and gross weights. Ship to home office or nearest branch named below. THE A. I. ROOT CO.

Medina, Ohio.

Chicago, 144 East Erie St.; New York, 44 Vesey St.; Philadelphia, 10 Vine St.; Washington, 1100 Maryland Ave., S. W.

WANTED.—A case of two 60-lb. cans extracted honey (1906 crop) of each variety or source from every State in the U. S.; also from Canada, Mexico, West Indies, and other accessible countries. With each lot is required a certificate guaranteeing absolute purity of the honey, and gathered from the source named. Exceptional care must be taken to have the honey well ripened, of good representative color from source named. The honey should be extracted from clean new comb free from pollen. An extra price of about 2 cts. per pound will be paid for such honey, or we will arrange, if desired by any, to supply those co-operating and furnishing sample shipments, with $\frac{1}{4}$ -lb. samples of each variety secured, labeled with name of producer, year, and source of honey. We expect to secure at least sixty varieties of American and foreign honeys. Do not ship, but advise us what you can furnish, and on what basis. THE A. I. ROOT CO., Medina, Ohio.

JELLY-TUMBLERS AT REDUCED PRICES.

You can double your money from your honey crop by using Jelly-Tumblers of correct style, as containers and keeping your market supplied. No other glass so economical. Write for quotations.

OREL L. HERSHISER,
301 Huntington Ave., Buffalo, N. Y.

H. C. Simpson, Catawba, S. C.
Dealer in
BEE - KEEPERS' SUPPLIES!

Breeder of Italian bees and queens.
Root's Goods a specialty. . . .

A. H. Reeves, Perch River, Jefferson Co., N. Y.
DISTRIBUTOR OF ROOT'S GOODS FOR
NORTHERN NEW YORK
BEESWAX WANTED

The Danzenbaker Twentieth Century Smoker

Awarded Highest Prize
A GOLD MEDAL
at the World's Fair,
St. Louis, 1904.



UP-TO-DATE,
STRONGEST,
COOLEST,
CLEANEST.

It has a side grate that strengthens the fire-cup, and holds a removable metal and asbestos lining that keeps it cool, adding to its durability. It has no valves to get out of order or snout to clog.

Every Thing Guaranteed "Root Quality."

ALL THAT IS CLAIMED.—The General Manager of the National Bee-keepers' Association says:

I have given your Twentieth Century a thorough trial. For convenience in lighting, durability, and long time one filling will last and give ample smoke, I find it all you claim. In the spring I shall want several. I always want the best. N. E. FRANCE, Platteville, Wis.

SURPASSES ALL OTHERS.—After giving the Danzenbaker Twentieth Century Smoker several trials, can say it surpasses all smokers; it has been my liberty to try; it will not go out until fuel all consumed, and it produces a cool smoke, a feature very necessary in any first-class smoker. Grant Stanley, Nisbet, Pa.

Prices: By mail, \$1.25; three, \$3.25.

By express or freight, one, \$1.00; three, \$2.50.

For further particulars, see Dec. 15th Gleanings, page 1370; sent free with price list.

F. DANZENBAKER, MIAMI, FLORIDA

Fruit Growers and Farmers.

Thousands of the best fruit-growers and farmers read the **Southern Fruit Grower** because they find it the most helpful fruit paper published. Contains 24 to 40 pages of valuable fruit and farming information every month. 50c a year. Send 10c and 10 names of fruit growers and get it 6 months on trial. Sample free.

The Southern Fruit Grower, Box 1, Chattanooga, Tenn.

**POULTRY
DOLLARS
COME
EASY.**

Our large 52 to 112 page beautifully illustrated magazine, best printed and edited poultry journal, makes it easy to add dollars to your income by keeping a few hens on a town lot or make a success on a large scale, covers everything. Contains information that will put you in comfortable circumstances if followed. **POULTRY SUCCESS** one year, 50 cts. Large illustrated poultry book free to annual subscribers. Three months' trial, 10 cts. **POULTRY SUCCESS CO.**, Springfield, Ohio.

KEEP YOUR EGGS

all summer while prices are low, and sell next winter at a good profit. Write for our plan; it will interest you.

T. T. POULTRY CO., Springfield, Ohio.

GET RID OF LICE.

For 25 cts. we send formula that never fails to exterminate lice. Costs less than 8c per lb. to make. Guaranteed. Used by many leading poultrymen.

T. T. POULTRY CO., Springfield, Ohio.

Gleanings in Bee Culture

Devoted to Bees, Honey, and Home Interests

E. R. ROOT
Editor

A. I. ROOT
Editor Home Departments

H. H. ROOT
Asst. Editor

Department Editors:
DR. C. C. MILLER, J. A. GREEN, PROF. A. J. COOK, J. E. CRANE,
LOUIS H. SCHOLL, G. M. DOOLITTLE, W. P. ROOT.

J. T. CALVERT, Business Manager

A. L. BOYDEN, Advertising Manager

Circulation 30,000. Reaches every State and 60 foreign countries.
Established in 1873. Sixty-four pages. Semi-monthly.
Published by The A. I. Root Company, Medina, Ohio, U. S. A.

Terms---\$1.00 per annum; 2 years, \$1.50; 3 years, \$2.00; 5 years, \$3.00, in advance.

Postage is Prepaid by the publisher for all subscriptions in the United States, Hawaiian Islands, Philippine Islands, Guam, Porto Rico, Tutuila, Samoa, Shanghai, Canal Zone, Cuba, Canada, and Mexico. For all other countries in the Postal Union add 48 cents per year for postage.

Change of Address.—When a change of address is ordered, both the new and the old address must be given. The notice should be sent one week before the change is to take effect.

Discontinuances.—The journal is sent until orders are received for its discontinuance. We give notice just before the subscription expires, and further notice if the first is not heeded. Any subscriber whose subscription has expired, wishing his journal discontinued, will please drop us a card at once; otherwise we shall assume that he wishes his journal continued, and will pay for it soon. Any one who does not like this plan may have it stopped after the time paid for it by making his request when ordering.

How to Remit.—Remittances should be sent by Draft on New York, Express-order or Money-order, payable to order of THE A. I. ROOT COMPANY, MEDINA, OHIO. Currency should be sent by Registered Letter.

Agents.—Representatives are wanted in every city and town in the country. A liberal commission will be paid to such as engage with us. References required.

Foreign Subscription Agents

Foreign subscribers can save time and annoyance by placing their orders for GLEANINGS with any of the following authorized agents, at the prices shown:

Paris, France. E. BONDONNEAU, 142 Faubourg St. Denis. *Per year, postpaid, 5½ fr.*

Kingston, Jamaica. HOOPER BROS., 20 Orange St. *Per year, postpaid, 5/6.*

Goodna, Queensland. H. L. JONES. Any Australian subscriber can order of Mr. Jones. *Per year, postpaid, 5/6.*

Dunedin, New Zealand. ALLIANCE BOX CO., 24 Castle St. *Per year postpaid, 6/.*

Other names will be added from time to time.

THE A. I. ROOT CO., Medina, Ohio, Publisher.

Find enclosed.....for which please send me Gleanings in Bee Culture.....months, and.....as per offer.....
Please continue sending Gleanings until otherwise ordered.

NAME.....

POSTOFFICE.....

COUNTY.....

STATE.....

DATE.....

If you want Gleanings discontinued at expiration, check here ()

500 COLONIES

of bees will be under the charge of the editor of the Bee-keeper's Review the coming season—100 colonies at home and 400 in the wild picturesque region of Northern Michigan. A brother of the editor is moving to this region this spring, where, aided by his boys and the Review editor, he will manage a little over 400 colonies for the production of extracted honey. Over 300 colonies will have to be moved there, some by wagon and 100 by rail, accompanied by the editor.

The locations have already been selected, and the Review for May devotes several pages to an account of this initial trip north, giving views and descriptions of that region, showing how to select the most desirable location, the difficulties to overcome, etc.

Next will come the moving of the bees, the establishing of the apiaries, the building of the honey-houses and the cellars, the extracting of the honey, etc. The editor of the Review, accompanied by his camera, will be in the "thickest of the fight," and all will be faithfully described and profusely pictured in the Review.

Send \$1.00 for the Review for 1906, and what back numbers there are left of 1905 (some seven or eight issues now) will be sent free.

If you would like to see the Review before subscribing, send ten cents for three late but different issues, and the ten cents may apply on any subscription sent in during the year.

W. Z. Hutchinson, Flint, Mich.

HERE'S YOUR CHANCE

to win a prize by doing a little work in
obtaining subscriptions for Gleanings
in our Second Subscription Contest.

Last contest EVERY contestant that sent in more than ONE subscription obtained a prize. It will doubtless be so in this contest, so that besides the regular commission you will receive a prize that will more than pay any effort made.

Twenty-five Prizes!

(Variety of queen to be winner's selection)	
First Prize	\$10.00 queen
Second Prize	7.50 queen
Third Prize	5.00 queen

Fourth Prize	3.00 queen
Fifth Prize	2.00 queen
6th to 15th Prize	One cloth-bound A B C
16th to 25th Prizes.....	One Junior Cornell smoke

Conditions!

FIRST.—That subscriptions to be entered in this contest are to be obtained as results of work between February 15 and July 1, 1906.

SECOND.—To be eligible to any one of the first fifteen prizes, contestant must have at least five yearly subscriptions, or their equivalents, to his credit.

THIRD.—That yearly subscriptions may be either new or renewal taken at our regular rates. Two trial subscriptions (new names, six months) are equivalent to one year's subscription.

FOURTH.—That subscriptions can be sent in any time, but must be plainly marked "For Second Subscription Contest."

CUT HERE

Gleanings in Bee Culture

Subscription Contest Department.

Date

GLEANINGS IN BEE CULTURE, Medina, Ohio:

Please send agents' terms and enter my name as contestant in Second Subscription Contest. Send to my address at proper time, advertising matter which will aid me in obtaining subscriptions. I have read conditions and agree to them.

Name

P. O.

I can use sample copies of Gleanings. State

CONTENTS OF THIS NUMBER.

MARKET QUOTATIONS.....	782
STRAY STRAWS.....	791
EDITORIAL	793
The Pure-food Bill Hanging Fire in Congress.....	793
Making a Newly Hived Swarm Contented.....	793
Obstructed Entrances.....	794
What Shall the Harvest be.....	794
Dr. Edward F. Bigelow.....	794
Big Field Day at Jenkintown.....	795
Fatalities from Bee-stings.....	796
CONVERSATIONS WITH DOOLITTLE.....	797
BEE-KEEPING IN THE SOUTHWEST.....	798
GENERAL CORRESPONDENCE.....	799
Is This Sugar-fed Syrup same as Honey.....	799
Alexander's Honey-tanks.....	801
Cyrenius Hive-lift.....	802
Comb Honey by the Two-queen System.....	803
Comb Foundation.....	804
Foul Brood.....	806, 807
Lighter Grades of Brood Foundation Condemned.....	808
Wax-rendering.....	810
Alsike.....	811
Control of Swarming.....	811
How We Know that Bees Hear.....	812
Photograph of Live Bee Sipping Nectar.....	814
Good Report from Northern Michigan Bee-keeper.....	814
Transferring Excursion.....	815
If I were to Start Anew.....	816
How to Handle Hives without Killing Bees.....	819
A YEAR'S WORK IN AN OUT-APRIARY.....	821
HEADS OF GRAIN.....	824
J. E. Chambers' Non-swarming Plan.....	824
Feeding by Setting Hive on Bottom-boards.....	824
Double-bottom-board plan to Keep down Increase.....	825
Curious Bee-tree.....	825
Yellow Spider.....	825
Bee-keeping in State of Washington.....	826
Honey in Brood-nest when Running for Honey.....	826
Necessity of Queen-breeder having Imp'd Queens.....	826
How Some People Handle Bees.....	827
Alexander Plan.....	827
Vertical vs. Horizontal Wiring.....	827
Plan for Getting Bees out of Wall of Building.....	827
Question Concerning Reason and Instinct.....	827
Honey in Brood-combs.....	827
Bee-keeping in Western North Carolina.....	828
Does Feeding Pay?.....	828
Southern Queens for Northern Apiaries.....	828
Preparing Hives for Moving by Carload.....	829
Bee-spaces between Supers.....	829
Comb Attached to Separators.....	829
Clipping Queens.....	830
Alexander Methods.....	830
Do Queen-bees Take a Cleansing Flight.....	830
Crocus-blossoms.....	831
Changing Hives while Swarm is in the Air.....	831
How to Get Rid of Laying Workers.....	831
Grape-basket on Pole for Swarm-catcher.....	831
Outdoor Feeding.....	831
Hiving on Starters of Foundation Unsuccessful.....	831
OUR HOMES.....	922
SPECIAL NOTICES.....	938

INDEX TO ADVERTISEMENTS.

Banking by Mail.....	846
Savings Dep. Bank Co.....	834
Bee Smokers.....	843
Bingham, T. F.....	843
Danzenbaker, F.....	783
Bee Supplies.....	837
Cook, J. H. M.....	837
Falconer Mfg. Co., W. T., Back Cover.....	837
Hershiser, Orel L.....	782
Hilton, Geo. E.....	843
Hunt & Son, M. H.....	788
Jepson, H. H.....	848
Ketchmer Mfg. Co.....	842
Lewis Co., G. B.....	790
Marshfield Mfg. Co.....	844
Minnesota Bee Supply Co.....	837
Muth Co., Fred W.....	782
Page & Lyon.....	841
Pierce.....	843
Poulder, Walter S.....	840
Prothero, Frank W.....	844
Reeves, A. H.....	783
Root Co., The.....	844
Root Co., The, Syracuse, N. Y.....	789
Root Co., The, St. Paul, Minn.....	841
Scott & Co., C. M.....	842
Soper.....	843
Stringham, I. J.....	844
Weber, C. H. W.....	781
Woodman Co., A. G.....	842
York Honey & Bee Supply Co.....	843
Bees and Queens.....	846
Alley, Henry.....	846
Anderson, Grant.....	846
Atchley Co., The Jennie.....	849
Blocher, D. J.....	849
Case, J. B.....	848
Colahan, F. J.....	846
Cox, R. O.....	847
Crawford, W. T.....	846
Darrow, C. M.....	848
Davis, John M.....	846
Doolittle & Clark.....	847
Jepson, H. H.....	847
Kreppen, Chas.....	847
Krechlan, D. F.....	837
Lawrence, E. E.....	848
Laws, W. H.....	848
Lewis, W. T.....	847
Lockhart & Co., H. A.....	847
Malan Brothers.....	847
McCain, Robert B.....	848
Mennie & Fenton.....	849
Miller, I. C.....	849
Miller, Isaac F.....	849
Moore, J. P.....	847
Mott, E. E.....	848
Parker, Jr., H. M.....	849
Quirin the Queen-breeder.....	846
Rails, W. H.....	847
Rambo, J. R.....	846
Robey, L. H.....	848
Roselawn Apiary.....	848
Routzahn, G.....	846
Shaffer, Henry.....	847
Shaw & Co., J. W. K.....	847
Simmons, E. A.....	846
Simpson, H. C.....	788
Strong, J. L.....	849
Taylor, J. W.....	849
Titoff, A. E.....	848
Victor-Knolle Apiary Co.....	849
Wurth, Daniel.....	849
Bee-books.....	789
York, George W.....	789
Comb Foundation.....	819
Dadant & Son.....	Back Cover
Dittmer, Gus.....	841
Fences.....	852
Coiled Spring Fence Co.....	852
Honey-buyers.....	852
See page.....	782-783
Household Specialties.....	852
Best Light Co.....	852
Horne Co., Joseph.....	834
Machinery.....	857
Deming Co.....	837
Electric Wheel Co.....	852
Lyons Engine Co.....	835
Medina Concrete Co.....	857
Myers & Bros., F. E.....	837
Miscellaneous.....	836
Best Gate Co.....	836
Hardware Specialty Co.....	834
Seaboard Air Line R. R.....	852
Shepard Co., O. C.....	834
T. T. Poultry Co.....	783
Publishers, Agricultural-paper.....	783
Southern Fruit Grower.....	783
Publishers, Bee-Journal.....	783
Falconer Mfg. Co., W. T., Back Cover.....	783
Hutchinson, W. Z.....	785
Root Co., A. I.....	784-785
York & Co., Geo. W.....	789
Publishers, Poultry-paper.....	783
Ohio Poultry Journal.....	852
Poultry Gazette, The.....	852
Poultry Item.....	852
Poultry Success.....	788
Wants and Exchanges.....	850
See page.....	850

ADVERTISING TALKS

BY THE AD. MAN.

The following clipping from the New York *World* emphasizes what we have been saying right along.

Don't advertise if you believe you are wasting money. Let your competitor waste the money on advertising, and perhaps in this way you'll soon put him out of business. Just stand back and laugh at him when you see him squandering his money for printer's ink. Once there was a boy named—we think his last name was Wanamaker, or may be Moneymaker; anyhow, his name was John, with some sort of a maker attached to his last name. He owned fifty yards of calico, three pairs of jeans, half a dozen pairs of boots. He called this a drygoods store through a Philadelphia newspaper, and offered to sell a pair of socks for 39 cents.

The don't-believe-in-advertising merchants just laughed. Young John spent \$65 with a Philadelphia paper to advertise just one time and less than \$100 worth of goods. He was cautioned by the merchants who knew it didn't pay. It was through sympathy that they offered him advice.

But John did not listen to them, and went and blew his money foolishly; and to-day poor John sees the result of his misdoings—he has so many large drygoods stores that he can hardly find time to study his Sunday-school lesson. Can you see a lesson in this? Be a progressive up-to-date business man. Advertise your wares if you want to sell them.

Some of the most skeptical merchants, when finally induced to advertise, become the merchants of prominence.

There is a wonderful field before any business man who has a good proposition, and who will carefully and constantly advertise. Repeating your ad. time after time is just the same as inviting Mr. Brown or Mrs. Smith to call again.

Just a few days ago we heard from a man who had never run his ad. in a paper of the class of GLEANINGS. He said he did not know any thing about bee-keepers. He seemed to think that they were a foreign race of people who had no such needs as the rest of us do. When he finally decided to try this journal he did it in a half-hearted way. But the result—well, his ad. appeared more than once, and will appear again in spite of the fact that the article he sells retails at from one to three dollars, and his ad. costs him nearly \$10 an insertion.

What is there about your proposition that makes it one which would not appeal to our readers? May be you would like to ask us a few questions about how best to bring your offer before our subscribers. We shall be very glad to have you do this, and are sure that you will value the assistance we can give.

The Medina Concrete Company has just issued a four-page folder entitled "Our Special." This folder shows four styles of their concrete machines, and gives information about building, concrete-block making, and instructions for mixing materials and making blocks.

Judging from the large number of machines which this company has sold this spring, concrete building-blocks are a very popular material for construction; and their machines, being so easy to operate and perfect in results, are coming into wide use.

Their address is The Medina Concrete Company, 22

Court Street, Medina, Ohio, and you should ask them any questions in regard to their machines or building-blocks, which you would like to have answered.

On page 834 of this issue our readers will find the ad. of Shepard's chick food, prepared by The O. C. Shepard Co., Medina, O. Mr. E. R. Root says of this food:

Until I used the chick food which I procured from the Shepard Company my hens were not laying. I was greatly surprised at the results after I had commenced feeding chick food to them. I am sure that this is a very valuable mixture for poultry, and advise any part of our readers who keep chickens, and want to secure the best results, to try it.

You will note that the Shepard Co. have told what their chick food is made of, and also have, at our request, quoted a special low price to bee-keepers who may wish to give it a trial. You will make no mistake by sending for a 100-lb. sack; but if you would prefer to have a sample first, send for this any way. Address as above.

When others report such profitable results how can you afford to keep silent?

The A. I. Root Co., Medina, Ohio:

Gentlemen:—Kindly discontinue my ad. in GLEANINGS with the issue of May 15th. It has brought me more business than I can attend to.

Norwalk, Ohio, May 12. GEORGE W. BARNES.

Mr. Barnes told the "ad. man" a few days ago that, when he ordered his one-inch ad. in, he had about 50 queens for sale. He sold nearly 200 while his ad. was running (6 times). He was very much surprised at the results, as he had never advertised queens before, and had no reputation as an expert queen-breeder. He possessed, however, the ability which enabled him to raise fine queens, and the confidence in GLEANINGS which led him to try it as an advertising medium.

A brother of Mr. Barnes advertised poultry in GLEANINGS two or three times this season, and found, as did Mr. G. W., that here was a good advertising medium.

Ask yourself if you can afford to miss a single number of GLEANINGS.

Gentlemen:—Find enclosed \$1.00, for which please send another year's subscription to GLEANINGS IN BEE CULTURE.

I thought my time was out with June 1st number, but I have not as yet received the May 15th. I don't want to miss any of the numbers.

Yours truly,

HALLOCK SHEARER,

Sec'y of the Wabash County Farmers' Institute and Domestic Science Association.

When are you going to make your start—now or in ten years?

Ten years from now there will be people explaining the advertising successes developed within the decade just passed, by saying "anybody would have succeeded if he had started when they did."—Mahlin's Messenger.

The Largest and Oldest Bee-Supply House in Michigan.

ESTABLISHED IN 1878.

Our business has been of steady healthy growth for nearly thirty years. It has been built up on our part by prompt service, courteous treatment, and careful attention to every detail.

The goods we sell are ROOT'S GOODS. They have a quality of their own. We call it "ROOT QUALITY." It's the extra pains taken to have the workmanship and material of the very best.

SOME OF THE NEWEST!

Alexander Feeders

Metal-Spaced Hoffman Frames

German Bee-Brushes

Everything for the bees and always "ROOT QUALITY."

M. H. Hunt & Son,
Bell Branch, Wayne Co., Mich.



This Offer Good Until July 1st Only !

**DOOLITTLE'S
QUEEN-REARING
BOOK**
For Only 25 Cents

**When taken with the Weekly American Bee Journal for One Year at \$1—
making \$1.25 for both.**

(Book bound in Leatherette cover, otherwise same as the cloth-bound book, which is \$1.)

This offer is open to any body, either new or old subscribers, but the latter when accepting it must send enough to pay their subscriptions a year in advance, if they are in arrears now.

Mr. Doolittle's book tells in detail just how he rears the best queens possible; also gives His Methods of Comb Honey Production. Every bee-keeper should have this book. (126 pages.)

OUR STANDARD-BRED ITALIAN QUEENS

are unexcelled. Reared by best queen-breeders. Prices—1 Untested, 75c; 3 for \$2.10; or 6 for \$4.00. Orders filled in rotation. Better get your orders in NOW for June delivery.

The Weekly American Bee Journal one year with Untested Italian Queen—both for \$1.50. And to all such who order, and who are NEW subscribers, we will send FREE all the back numbers of the Bee Journal since Jan. 1, 1906, so long as they last. We have quite a few full sets left since Jan. 1. First come, first served.

Sample copy of the Weekly Bee Journal free on request, or a Trial Trip of 3 months (18 copies) for only 20 cents, to a new reader. Better order now, as there are lots of good things appearing in its columns every week.

Address,

GEORGE W. YORK & CO.

334 Dearborn Street, CHICAGO, ILL.



Mr. Bee-keeper

Just a minute of your time, please. Swarming will soon be over and honey coming in. We can send foundation and sections, if you need them, by express promptly.

The A. I. Root Company
Syracuse, New York

5 Points of Comparison

JUST recently a Lewis agent complained that another concern was selling a hive cheaper than the Lewis hive, with the statement that he could not understand how that firm could afford to undersell the Lewis Company. We straightway had one of these so-called cheap hives sent to us at Watertown, and, after a careful and unbiased inspection of the hive in comparison with the Lewis hive, we are able to give the answer as illustrated below.

I. The Material was a poor quality pine, containing knots and other imperfections.

Lewis Hives are all made of the best Wisconsin white pine, absolutely clear.

II. The Cover was of the simplest and cheapest design.

Lewis Covers are all standard covers, made strong and substantial.

III. The Body was crudely made, having no handles.

Lewis Bodies go together snugly, and are all fitted with handles.

IV. The Frames were very poorly made, the end-bars rough-sawed, showing poor spacing, and were not pierced.

Lewis Frames are accurately and carefully made to give correct bee-spacing; and in the Dovetailed and Wisconsin hives are always pierced.

V. The Super contained no super-springs. The slat fences were made of thin flimsy pieces, so thin as to be easily broken even by shipment. The section-holders and section-slats were rough on both sides.

Lewis Supers are all completely furnished with super springs. The fences are made of strong pieces firmly put together. The slats and section-holders are made of good lumber smoothly planed.

Summing up the Matter, it was like comparing a soap-box with a parlor cabinet.

Mr. Bee-keeper, Which will You Have?

ENGLAND—E. H. Taylor, Welwyn, Herts.

CUBA—C. B. Stevens & Co., Havana.

C. B. Stevens & Co., Manzanillo.

CALIFORNIA—Chas. H. Lilly Co., San Francisco.

SOUTHERN CALIFORNIA.—

Fletcher-Doyle Co., San Diego.

Fallbrook Co-operative Association, Fallbrook.

Paul Bachert, Lancaster.

COLORADO—R. C. Aikin, Loveland.

Arkansas Valley Honey-producers' Ass'n, Rocky Ford.

Colorado Honey-producers' Association, Denver.

Fruit Growers' Association, Grand Junction.

Robert Halley, Montrose.

IOWA—Adam A. Clark, LeMars.

Louis Hanssen's Son, Davenport.

ILLINOIS—York Honey & Bee Supply Co., 141-143 Ontario St., Chicago.

Dadant & Son, Hamilton.

INDIANA—C. M. Scott & Co., Indianapolis.

MICHIGAN—A. G. Woodman Co., Grand Rapids.

MINNESOTA—Wisconsin Lumber Co., 432 Lumber Exchange, Minneapolis.

MISSOURI—E. T. Abbott, St. Joseph.

OHIO—Norris & Anspach, Kenton.

OREGON—The Chas. H. Lilly Co., Portland.

PENNSYLVANIA—Cleaver & Green, Troy.

TEXAS—Southwestern Bee Co., San Antonio.

UTAH—Fred Foulger & Sons, Ogden.

WASHINGTON—The Chas. H. Lilly Co., Seattle.

G. B. LEWIS CO.
Manufacturers Bee-keepers' Supplies
WATERTOWN, WIS., U. S. A.

GLEANINGS IN BEE CULTURE

A Journal Devoted to Bees, Honey, and Home Interests
Illustrated : Semi-monthly : One Dollar per Year
Published by The A. I. Root Company, Medina, Ohio

Vol. XXXIV.

JUNE 15, 1906.

No 12



R. C. AIKIN'S plans, p. 731, are so thoroughly logical that it almost makes one fall in love with the sectional hive.

"THE GERMAN CENTRAL UNION of beekeepers numbers 3⁴,809 members." That statement, made on p. 715, needs correction. A later numbering makes the number 50,000.

REIDENBACH, editor *Pfaelzer Bienenzzeitung*, has made repeated observations, and finds the temperature of the center of the cluster in the coldest weather 86 to 92°, and the periphery, or crust, 59 to 78°.

BAREHEADED BROOD is caused by worms, says Dambach, in *Schweiz. Bztg.* Just what I said years ago. Proof lies in the fact that it does not occur in strong and prosperous colonies, and always in rows or spots.

PROF. SURFACE, you have stirred me all up by saying in your list of Pennsylvania honey-plants, "alfalfa, where grown." Please tell us more about it. Does it yield here, but as yet there is no proof that it yields.

YOU THINK, Mr. Editor, that climatic conditions may account for the delay in queens hatching. Quite right. Another thing that may make even more difference is strength of colony. Careful and repeated experiment may very likely establish 17 days as the correct time from the laying of the egg to the emerging of the queen, if the experimenting be done in a nucleus weak enough.

J. E. CRANE'S "crumb of comfort for Dr. Miller," p. 721, is more than a crumb. It's a whole loaf. Nor does the comfort consist in the fact that hybrids give more honey than pure stock, but in the fact that he gained by using pure queens with grade drones. That's easy to try. I'll try it.

IN ADDITION to the good advice given Prof. Bigelow, p. 746, this also might be given as another alternative: Move the old hive with its contents to a new location. Take from it the queen with a frame of brood and bees, and put in a new hive on the old stand. Two or three days later, more brood can be given to the new from the old, if desired.

YOU SAY I never liked the shallow hive. "Error i' the bill." I liked it, and expected to adopt it, until trial showed its faults. [I remember that you once used the Danzenbaker hive, but this is only slightly shallower than the regular Langstroth size. I did not remember that you ever used the genuine shallow hive in any considerable number.—ED.]

EDITOR ROOT asks again, p. 717, if I don't find myself clinging to the old, true, and tried just a *wee bit* more than I once did. Certainly; didn't I say so, p. 717? I said I had improved just a little, and was less inclined than formerly to run after new things. Still, I don't think I'm yet quite so conservative as the editor of GLEANINGS — for instance, in the matter of three-compartment hives.

HOW MANY of the "younger fry" have abandoned T supers? They have hardly abandoned them who have never tried them; and I would abandon them too if I used them as some do—intelligent men too. An intermeddler at my elbow suggests, "If the A. I. Root Co. had pushed the T super as much as some other things, wouldn't the younger fry all be using the T super? [Did I say the younger fry abandoned something they never used? I have looked, but I do not find

the place. If the language implies it I stand corrected. Tell that "intermeddler" that I do not agree with her. Not every thing sells that we advertise or "boom." It won't go unless it has merit.—ED.]

"IS IT NOT a fact, doctor, that you clung tenaciously to the old T super with loose T tins when all the younger fry had abandoned them in favor of either the section-holder or wide frames?" So ye editor, page 717. It is a fact that I clung, and still cling, to the aforesaid super. I expect to cling to it till I find something better. Your question intimates that if I were more progressive I would abandon the T super for the wide frame. After using the wide frame for years I abandoned it for the T super. Does not that show as much progressiveness as if I had changed the other way? [But you never used the section-holder to any great extent, doctor. The old wide frame that you used extensively years ago could hardly be considered equal to your present T super.—ED.]

THE U. S. DRINK BILL for 1905—just the cost of liquor alone—was not less than \$1,500,000,000; and the indirect cost—that is, the cost of crime, loss of productive labor, etc., was at least \$1,000,000,000 more, making a total \$2,500,000,000. That makes more than \$30 per capita, or \$150 to every family in the U. S. How long is an intelligent nation going to stand such a waste? [The people are being awakened, and the recent temperance legislation in the various States shows that the time will come when this awful cost, and I might say this disgrace as well, will be obliterated. By our recent laws some 600 saloons have been driven out of Cleveland alone within the last 30 days; but that still leaves a very large number; but if we keep on trimming at the dog's tail we shall soon be up to his head.—ED.]

DENATURED ALCOHOL FREE! Good! Now please tell us how much can be paid for one pound of honey to be made into alcohol, so that we may know whether or not to save up our poor honey till next January, when the law goes into effect. [Your question assumes that we could afford to sell poor honey so that it could be made into alcohol. Whatever I may have said on the point, I did not intend to give that impression; for the cheapest honey sold in the United States would be too dear for the purpose. But it sometimes happens that a bee-keeper will find on his hands quite a quantity of honey slightly soured. It is this honey that he can sell to the baker or to the distiller. Of course, it could be converted into honey vinegar; but ordinary cider vinegar is so nearly equal in quality, and so much cheaper, that the production of honey vinegar is not usually profitable.—ED.]

FOR FEAR you don't happen to think of it, Mr. Editor, I will remind you of one thing that looks as if bees do not value pollen as highly as honey. When a colony becomes queenless it goes right on storing pollen until it has an oversupply. Then it practically

stops gathering pollen, but keeps right on storing honey. Yet I'm not sure that that proves that bees place a higher valuation on honey than pollen.

P. S.—Footnote, page 716, to hand. You are still a little off. In the heaviest flow, not only will some stray bees be taking in pollen, but a fair proportion of them; neither do they depend on pollen already stored up before the flow, but keep up the surplus pollen during the flow. If at the beginning of a long heavy flow the bees had on hand enough pollen to last through the flow, do you think there would be room enough in the combs for the brood? [As we are now right in the midst of a honey-flow I will make this a matter of special observation, and report my finding later.—ED.]

SPEAKING of three-compartment mating-hives, p. 717, the editor hands me this question: "If you made each division the same size, would you not get a difference very much like that shown in the Ferris diagram?" Quite likely. But I wouldn't be foolish enough to have more than one frame in the middle compartment, as distinctly intimated, pp. 69 and 200, and the sketch, p. 140, was made, I think, the same way; but the printer took liberties with it. He has also taken liberties with the one on p. 717, which should show two combs in each outside compartment fully occupied with bees. You say my bees must be different from yours if they don't show a strong tendency to cluster toward the entrance. To be sure, they have that tendency; but I wouldn't be much of a bee-keeper if I couldn't overcome the tendency. [The diagram had to be made of what is called "map type," as it was not practicable in the short time we had before the day of publication to have a drawing and an etching made. If you make the central compartment slablike, and the other two of such width as to complete the ball of bees, you may be able to work the three-compartment nucleus.—ED.]

YE EDITOR says, p. 725, "Say, my good doctor, it does me good to see Mr. Green jab you in the ribs." Who—me? Jimmie Green jab me in the ribs? Where? Why, bless your heart, he's standing right up beside me with his arm around my shoulder. We are both agreed that there is no such thing as a "one-pound section," and that a light weight section should never be sold for a full pound. Years ago I favored the idea of a section so light that it could not be palmed off for a pound, and his 12-oz. section fills the bill. Jab me? Not much. [Whoever Jimmie is jabbing at, he is preaching my doctrine to a T. If you subscribe to all he says, let's shake. But, say; what does Jimmie mean when he says, "It does not by any means follow that the man who buys a 12-ounce section of honey is either cheated or deceived, nor even dissatisfied. He buys a box of honey"? That is exactly the doctrine I have been preaching. Certainly I have never said or implied that the light weights "deceive" or "cheat,"

Again, Mr. Green says, "The dealer, in fixing his selling price, seldom knows or cares any thing about the market price of honey as quoted in the market reports." That is exactly my notion. If you subscribe to these sentiments, then we are on the same side of the fence. Shake again.—ED.]

"PERHAPS Mr. Doolittle meant that the brooding heat of the cluster of bees would be the same, no matter what the outside temperature was." So you say, Mr. Editor, p. 716. If Mr. Doolittle says he meant that, I'll take his word for it; but please, Mr. Editor, read what he says, *American Bee Journal*, p. 364, and tell us what you think he meant. Among other things he says, "And right here I shall, I suppose, be considered a heretic by the masses when I say that, from all I can see by way of my experiments, they will keep that temperature of from 92 to 98 degrees in the brood-nest just as easily as they did or could before the other hive was put on, as the heat is confined within the *cluster or crust* of bees, not in the hive. . . . No, the heat from the cluster is not allowed to pass up into an upper hive at any time when that heat is needed for the brood within the cluster of bees." Don't you see there would be no heresy in saying that the bees "eat more honey, and thus generate more heat"? The heresy is in saying that "the heat is confined within the *cluster or crust* of bees." And if you want my conclusion I will say that, since the experiment given, p. 716, I think most emphatically that, in that particular, Mr. Doolittle is a "heretic." The practical bearing of the matter is of exceeding importance; for upon it depends whether we shall or shall not in spring keep the brood-chamber as warm as possible. [The editor deems it wise not to mix in this fray, and therefore turns you over to Mr. Doolittle direct. Permit me to say that, for the present at least, you seem to have the best of the argument. Now, friend Doolittle, "wade in."—ED.]

REV. S. L. ORR, in that sprightly publication *The Irish Bee Journal*, says there is foundation of all grades of quality and price, according to whether it is pure or adulterated, the bees having trouble with much of it, both in brood-chamber and super. A. Schilling says, in *Deutsche Ill. Batzg.*, that one of the largest manufacturers of foundation in Europe was convicted of selling foundation (guaranteed pure), that was ½ paraffine; and of six samples from six leading Austrian manufactories, only two were unadulterated! Whatever else may be in this land of wooden nutmegs, we never have a moment's anxious thought as to the purity of our foundation. [Strange that some of the manufacturers in Europe should pursue the suicidal policy of selling adulterated foundation, even for what it is. The makers in this country know that paraffine, ceresin, or any other mineral wax in foundation, would very soon show itself to the practical bee-keeper. A ruined reputation would do tenfold more

mischief to his business than any slight gain he would make by putting out an adulterated article. But any manufacturer of foundation may inadvertently get taken in on a small lot. We find it necessary, for example, to examine carefully every cake of wax and inspect it for its quality and purity before accepting it. Even then we might get taken in with a few adulterated samples. Every year we have to reject considerable quantities; and we presume that our experience has been duplicated by that of other manufacturers. We will not, if we know it, allow even one per cent of paraffine or ceresin to get into our product; and, so far as we know, that is the attitude of all other manufacturers in this country.—ED.]



THE denatured-alcohol bill has been finally signed by the President, and the law will take effect on the first day of next January.

THE PURE-FOOD BILL HANGING FIRE IN CONGRESS.

THE pure-food bill is hanging fire in Congress. There seems to be now a possibility that it may be passed; but certain whisky, patent-medicine, and canning interests, so it is stated in the papers, are fighting it with powerful lobbies. But over against them we have the strong personality of President Roosevelt, who is doing every thing in his power to have the bill enacted into law. But we can not be successful unless the people write to their Senators and Representatives, urging them to support the bill and pass it without further parley. The friends of the pure-food bill feel that if it is killed now it may be a good many years before we shall come to a point where we can get an equally good law.

IMPORTANCE OF MAKING A NEWLY HIVED SWARM CONTENTED.

ATTENTION is drawn to a very seasonable suggestion by Mr. Holtermann, at the close of his article in this issue, on the subject of making a newly hived swarm comfortable with plenty of shade, abundant bottom ventilation, and a large amount of room—at least until such time as the bees can "cool off." A swarm, for a day or two after it is hived, is in a state of frenzy or excitement; and if conditions are not exactly suited to their comfort or liking they will, while in that state, swarm out again, and then it will be exceedingly difficult to make them feel satisfied anywhere. When they are

bent on swarming I would hive them and take them down cellar and keep them there for two or three days, or until they could "cool off."

OBSTRUCTED ENTRANCES IN THE HEIGHT OF THE WORKING SEASON.

ATTENTION is drawn to a very suggestive illustration by our artist, Mr. Murray, at the close of the Doolittle article on non-swarming, in this issue, page 823, showing a tangled entrance and one that is free of obstructions. Many and many a time I go through a bee-yard and see dollars being lost, as I view it, just because of a little lack of attention on the part of the owner of the bees. An hour's time with a grass-hook would remove all the obstructions and save days and days of time, to say nothing about torn wings and shortened working capacity on the part of the little bees.

I remember visiting, some years ago, a yard of quite a prominent writer, and I was astounded to see how disorderly every thing appeared to be—hives out of plumb, and entrances fairly grown up with grass and weeds. It is needless to say that that man did not continue to write for us any longer, for every thing about his yard betokened any thing but successful management.

It is not necessary that the whole apiary be made to look like a city park; but it is important that the flight of the bees be not obstructed, at least during the active working season.

WHAT SHALL THE HARVEST BE?

THIS is a hard question to answer. I am glad to say, however, that I am able to give something a good deal better than a guess. We will start with the extreme western coast. In San Diego Co., Southern California, there will be a fair crop; but in the region round about Los Angeles the season which promised so well a few weeks ago has not come up to expectations. Indeed, the crop will be light, it is feared, at this writing.

Central California will contribute its full quota of honey.

Texas is having a poor season. This is unfortunate on the eve of holding the big convention at San Antonio. Colorado is not doing much apparently. There was a big loss of bees owing to the failure of the crop a year ago.

The region immediately west of the Mississippi appears to be far below the average. Too much drouth seems to be the cause.

At the present time it is too early to predict what the result will be in the central part of the United States or that territory 200 or 300 miles east of the Mississippi; but we have reason to fear that there has been a lack of rain at just the critical time. It is not too late yet for rain to do good; but some bee-keepers are beginning to feel a little blue.

In the eastern portions of the United States conditions for a honey-flow have been

exceedingly favorable. Our bee-supply trade has been far heavier than we have ever had it before in all our experience. Had it not been for the lightness of trade in the far West we should have been buried out of sight with orders.

Taking it all in all, there will be a light California crop and a light flow from Colorado, and a scant supply from Texas. Indications are magnificent for a good flow from clover in the eastern portions of the country; but as for the Mississippi Valley, we are in doubt.

We desire our subscribers to send in postal-card reports, not to exceed two or three lines, describing conditions as they find them.

After writing the foregoing the following came from our office in Washington, and will explain itself:

We are continually getting good reports from the Virginias and Carolinas as to this year's honey crop. There seems to be a fine flow over the whole of the South Atlantic States. Around Washington the frequent showers have livened up all the clover and other sources of honey, so that there seems to be a fine flow. We get such reports as the following: "Honey seems to be rolling in." "Linden is just opening up." "Best honey-flow since we have been in the business."

Washington, D. C., June 6.

H. G. LARUE.

DR. EDWARD F. BIGELOW.

We are glad to introduce Dr. Edward F. Bigelow, lecturer, editor, and naturalist, from Stamford, Ct. Among the scientific men who love the study of the bee, we have no greater enthusiast than Dr. Bigelow; and he carries his enthusiasm in his walks, talks, and writing. His enthusiasm bubbles over to an extent that it is contagious, for one can not be with the doctor long without having his interest in bees renewed to a higher pitch.

For several years back Dr. Bigelow has been Nature and Science editor of the *Saint Nicholas Magazine*. Formerly for three years he was editor of *Popular Science*, and eight years editor and publisher of the *Observer Magazine for Naturalists*. At the present time he is instructor in nature study at teachers' institutes in Pennsylvania, Delaware, Ohio, Michigan, West Virginia, and California. He was the originator and director of the first session of the Annual Summer School of Nature Study at the Connecticut Agricultural College, Storrs, Ct. For two years he was director of the Annual Summer School of Nature Study of the Connecticut Chautauqua Association. For six years he has been director of the departments of Nature Study and Biology at the Castle Private School for Young Ladies, at Tarrytown, N. Y., and formerly held the same position for two years at the Mackenzie Private School for Boys. For eight years he was principal of public schools, and for the past six years has been lecturer of the New York Board of Education. He has lectured at Martha's Vineyard Summer Institute for Teachers and elsewhere. He is well known among the naturalists and teachers of the country as a general instructor in nature study; and his

enthusiasm and love for the bees have made this department of his work particularly interesting and instructive. He was the inventor of the Bigelow Educational hive and of the Pearl Agnes hive that were illustrated and described in these columns. He has a regular scientific laboratory at his home, entirely devoted to the general study of bees. Not merely content with the practical side of the subject of bee-keeping, he is constantly delving down into the scientific side. Scientific men, teachers, and instructors at the colleges speak of him in the highest terms.

Dr. Bigelow is a most interesting speaker; and those who have the opportunity to hear him should not fail to do so. We feel very fortunate in securing his attendance at the Jenkintown field-day meeting; and those of our friends who will be able to attend these meetings, we can say in advance, will not be disappointed when they see and hear Dr. Bigelow. Like Prof. H. A. Surface—and the men are very much alike in some respects—he is a whole team. Here is a list of some of Dr. Bigelow's popular lectures—lectures that have delighted audiences wherever they have been delivered:

Journeys about Home—Roadsides, Fields, and Forests; Travels in a Swamp; Vacations in the Country; The Haunts of Nature; Half-hours at the Sea-side; Journeys in Space—Our World and Others; Our Nearest Neighbor, the Moon; Nature's Largest Things; Let Nature be Your Teacher; Henry David Thoreau; In the Land of the Setting Sun; Nature's Little Things; Lectures on Nature Pedagogy from the Standpoint of the Child, etc.

OWING to not getting data concerning the life of Mr. J. C. Acklin, whose untimely death was announced in our last issue, in time for this number, we have arranged to put in a full write-up, with a portrait on the cover, in our next issue.

THE BIG FIELD DAY AT JENKINTOWN, PA., JUNE 26.

As will be seen by the announcements on pages 851 and 888, this promises to be one of the biggest things of the kind that was ever held in the United States. While the meeting of a year ago at the same place was in the nature of a convention and field day combined, the convention feature at this meeting has been almost entirely eliminated, and practical field work will take its place.

We are fortunate that we shall have with us three well-known scientific men—Prof. H. A. Surface, of Harrisburg; Dr. Edward F. Bigelow, of Stamford, Ct., and Dr. E. F. Phillips, of the Department of Agriculture, Washington, D. C. and the partial promise of several others. In addition we shall have such practical men as Doolittle, Coggshall, West, Pratt, Morrison, and possibly E. W. Alexander and others. These men are too well known to need further mention.

Mr. W. A. Selser, our eastern manager at Philadelphia, is making preparations to receive over a thousand people. While we may not have such a number present, yet if we should have a good day, all indications go to show there will be the biggest crowd of bee-

keepers that ever assembled in one place in the United States.

I have just come from Jenkintown, and was much pleased to note how well Mr. Selser has got things in hand. The apiary is beautifully situated, parklike in appearance, and the terraces will give an opportunity for an immense crowd to sit in comfort and take in all the demonstration work by the various experts.

OUR STINGLESS BEES AT JENKINTOWN.

Something that I think will especially interest those who do attend will be the handling of a colony of stingless bees by W. K. Morrison, lately from the tropics. These bees are interesting, to say the least, and such combs! Instead of individual cells, they make immense cups of wax. While the internal construction of their brood-nest is entirely different from that of other bees, they are yellow and look very much like ordinary Italians; are a trifle larger, and a little blunter at the end of the abdomen, where there is no sting. Mr. Selser reports that these little chaps, when annoyed, will attack one's nose and ears, as if they were going to do something awful. While the little bites of these bees are not painful, he says it makes one feel as if he had got into a fearful hornet's nest.

We regard these bees as a find, and hope to propagate them possibly in Florida; for if they work as they did the day I saw them, when the other bees stayed in their hives because of the cold, they may be something more than mere curiosities.

Prof. Surface was selected to preside because of the fact that he has splendid talent in this direction. If there is any man who can make things move along with a clocklike precision in a businesslike way, it is Prof. Surface.

MAILING-CAGES FOR QUEENS.

OUR subscribers are urged to be very careful when putting up queens for the mail to see that the wire cloth is covered by a cardboard or wood cover so that no stinging of employees handling the mail can occur. We occasionally receive cages with wire cloth unprotected, which is contrary to postal regulations.

ANOTHER NEW SYSTEM OF COMB-HONEY PRODUCTION AND SWARM CONTROL; MAMMOTH JUMBO HIVES; HANDLING HIVES WITH A DERRICK.

WE have just closed arrangements with Mr. A. K. Ferris, of Madison, Wis., by which he is to contribute a series of articles describing his system of swarm control and comb-honey production. This system involves the use of mammoth jumbo hives—so large, indeed, that they actually require a special derrick, I call it, to permit of handling the brood-chambers, taking off the hive, and, in fact, doing any thing and every thing that requires back-breaking, lifting work.

While some of the principles of the system are not new, the method of applying

those principles forms a combination that is as novel as it is startling.

As I have previously explained, Mr. Ferris is only a three-year-old bee-keeper. He was not wedded to old ways and methods, but at the very inception of his experience he devoted himself ardently to the subject of swarm control and honey production. Unlike some would-be inventors, instead of launching out into the doubtful field of invention without the knowledge of what others had done, he studied thoroughly all the methods in vogue, and then went at it and got up a system of his own.

While I doubt somewhat that the system he describes will revolutionize the plans used by old bee-keepers, yet it will place strong emphasis on some of the good ideas so persistently advocated by such successful bee-keepers as the Dadants, R. F. Holtermann, and other advocates of colonies in large hives, and in the end do good. Mr. Ferris will show that we have possibly been frittering away our time with little picaninny colonies, while we might better have concentrated our energies into powerful colonies made so by two queens in mammoth hives, where the bees can concentrate their energies.

When it is understood that our friend found it necessary to use a derrick employing a combination of ropes, pulleys, cog-wheels, and levers, in order to handle his hives, a feeling of pity as well as ridicule may come over the hearts of some of our bee-keeping friends, perhaps. But let me request all such to withhold judgment until they see the whole system in its entirety; for it is to be explained through these columns for the first time. One thing more:

Mr. Ferris feels that he can produce as much comb honey as extracted off from a given set of bees; and when you see his comb-honey arrangement you may recognize some old features, and perhaps some old combinations; but I think you will acknowledge that nothing exactly like it was ever used before by any bee-keeper.

The editor is not making any claims for this system, for that would be premature at this time. He only knows that it is one that may well receive the careful thought of every intelligent bee-keeper who is looking on the dollars-and-cents side of the business, whether he adopts the plan wholly or in part.

FATALITIES FROM BEE-STINGS; HOW BEES MAY BE HANDLED WITH IMPURITY.

DURING the last few days there have been various accounts in the Eastern press of a farmer who, when hauling a colony of bees home, was stung to death by them. It appears that a severe jolting of the wagon loosened the cover, allowing the bees to escape, with the result as stated. The farmer's son was stung, and the presumption is that the horse received his fair share, but nothing serious is reported in either case. From the account given, it is hard to say whether the man died as the direct result of the stings or because of a weak heart. In

any event, cases of this kind are exceedingly rare. But whenever there is a fatality resulting from bee-stings the newspapers are inclined to make a great hurrah about it, leading the general public to believe that the sting of a bee is most deadly. In the twenty years that I have been connected with this journal I do not remember more than three or four cases where a loss of life has occurred as the direct result of bee-poison. Fatalities to horses and other stock are equally few and far between.

Had the farmer taken the pains to rope or nail his cover down, or even if he had had a lighted smoker, no such result would have occurred, probably. As a general thing, bees that have been jolted over the road are very tractable. Our readers know that there are not a few practical bee-keepers who advise putting bees into a wagon without even closing the entrances of their hives. The bees are smoked when being put on the wagon, and the hives are driven off at a rapid rate. It is well known that drumming on box hives to force the bees out into other hives induces quiet on the part of the bees. In the same way, the jolting over roads in a wagon produces the same effect.

In comparison with this, a recent performance by Prof. H. A. Surface and assistants, in Capitol Park, Harrisburg, Pa., stands out in strong contrast. The professor had given out in the papers the previous day that he would on the following day take a swarm of bees out of a squirrel-box in one of the park trees at a given time. Accordingly, barehanded, with nothing over his face, and armed with only a smoker, he ascended the tree by means of a ladder, smoked the bees, then knocked the box loose. This he then let down with a rope, to the amusement of crowds of people aggregating something like 800 who had come to witness the wonderful stunt.

After Prof. Surface had descended to the ground he pried the box open, scooping out the bees by the handful, to the great amazement of the onlookers. He then took occasion to say there was no such thing as manufactured comb honey, giving an offhand lecture on bees and their habits.

The bees were successfully placed in a modern hive and removed to the Real Estate Building, on the third floor of which is located the Division of Zoology. During the whole performance Prof. Surface received no stings except those self-inflicted for the amusement of the crowd.

The various accounts in the newspapers showed that the public was tremendously interested, and the immediate effect of such a demonstration will be to stimulate the demand for honey, and at the same time remove the general impression that bees are always bent on mischief, and will sting on the slightest provocation. The bee-keeping industry as a whole may well congratulate itself that it has in its ranks a scientific man who not only understands bee life but is capable of handling bees themselves bareheaded and barehanded.

*Conversations
with
Doolittle*

SECTION HONEY AND NO INCREASE.

"Say, Doolittle, are you too busy to have a little talk with me on bees this morning?"

"Well, Mr. Robinson, it a busy time of the year just now; but as this 'busy' is with the bees, perhaps we can make it profitable to stop a little while and talk about bee business. What is on your mind this morning?"

"I have not been a bee-keeper very long, and so come to you wishing your advice regarding the best method of producing comb honey on a no-increase plan."

"What are your reasons for wishing no increase?"

"This year I want to balance up the ledger, so I do not wish to buy extra hives, using no more hives than the bees now occupy, which is all I have."

"Well, you are getting me down to a fine thing—just no increase, and no chance for a hive or two for an emergency."

"Do you not think such a thing possible?"

"Yes, it is possible; but it is of doubtful expediency."

"Then if it is possible I want you to tell me how I can do it."

"I suppose you have plenty of supers of sections?"

"Yes."

"Then the first thing to be done is to have all these in readiness for use, having, in the first super put on, quite a few 'bait' sections."

"What are bait sections?"

"They are sections partly or nearly filled with comb, left over from the season previous—such as did not have the honey in them sufficiently completed so that they were salable. Have you such sections?"

"Yes, quite a lot of them."

"Well, practical bee-keepers use from two to twelve of these sections in the first super put on the hive at the commencement of the honey season, as they entice the bees in the super at once, with the first honey, as there is now in such prepared supers a place for the immediate storage of honey, and the bees will take advantage of these open cells and fill them with honey before they would draw out any comb foundation, and much sooner than they would build comb; and in this early entering of the sections comes the desire to draw the foundation in the other sections, so that the bees are fully at work in the whole super almost before they know it, and from this desire to fill the whole super the swarming fever does not come on nearly so quickly as it otherwise would; while if more super room is added as fast as

required the colony may not think of swarming during the whole season."

"Well, now, that makes the matter so I can understand it. I had read about bait sections, but could not comprehend the matter before in all of its bearings. But these baits will not prevent swarming entirely, will they?"

"No. If they would, the bee-keepers of the world would go wild with joy; for the swarming of bees is the great bane in our pursuit, especially after one has all the increase he desires."

"Then how am I to keep down the increase if this will not do it?"

"The main object of the baits is to coax the bees early into the sections, thereby delaying preparations for swarming for a week or two, this giving you a better chance for profit from your bees, and working for no increase at a time when it will be more surely successful, and the least damage to your crop of surplus honey."

"Then I have other work than this to do?"

"Yes. About seven days before you expect your honey harvest to commence in good earnest you will go to each hive, taking with you a queen-cage made of wire cloth; hunt out the queen and put her in this cage, after which you will look over the combs in the hives for queen-cells; and if you find any with larvæ in them, or any which are sealed, you will cut them off."

"What is this for?"

"So that no young queen shall emerge from her cell in that hive while the old queen is in the cage."

"How long is she to be left in the cage?"

"Ten days, or till all the larvæ and eggs which are in the hive when the queen is caged shall have become sealed over; for I find that, when any colony goes without a laying queen long enough so that all the brood is sealed over, such a colony loses its desire for swarming, with the cutting of all queen-cells and the liberating of the queen. And where any queen-cells with larvæ in them, or any such cells which are sealed over are in the hive at the time of the caging of the queen, they are liable to emerge from their cells before we are ready to let the queen out, and thus our work is thwarted."

"Where do you keep the cage while the queen is in it?"

"By looking the frames of comb over which are in the hive you will be likely to find one or more which do not have the comb built down the bottom-bar of the frame the whole length. Taking advantage of such places I slip the cage with the queen between the comb and the bottom-bar, where it is held securely till I wish to let out the queen."

"What about food for the queen? Do you put any in the cage?"

"No. The bees will take care of that part unless you allow young queens to emerge from their cells, in which case they might neglect her and leave her to starve."

"I think I understand the matter so far. What next?"

"At the end of ten days from the time of the caging of the queen the hive is opened and all queen-cells are cut off the combs. That you may not miss any, it is always best to shake the bees off the combs; for unless you do, one or more cells are usually so covered by the bees that they are not seen; and the leaving of one or more cells would work the spoiling of the plan by the bees swarming."

"I see. But how do you shake these combs—each one at the entrance of the hive, as you lift them out?"

"That is the way I used to do it; but of late years I have found it far better, both as to freedom from stings and in preventing the bees from piling up on the unshaken frames still in the hive, to take an empty hive with me, or, what is still better, an empty box made of half-inch stuff, so as to be very light, the same being made to hold one frame more than the hive will, so that there need be no crowding in putting the frames in. I have three or four of these boxes, and find them very handy indeed in all work when handling frames, setting the combs in such a box instead of standing them about the hive with one end resting on the ground, as I have seen many bee-keepers do, and as I used to do myself. Having the box with me I take the frames out of the hive, and place them in regular order in this box till I come to the last one, when it is shaken in front of the entrance to the hive and carefully looked over for queen-cells, which are cut off if any are found, and the frame put back in place in its hive. The one which went next to it is now taken from the box, the bees shaken from it as with the other, cells cut off, and so on until all are back in the hive. In this way the bees are all practically out of your way; you do not have them piling up on top of the frames, and, still better, there is not a lot of them all over the rabbets where the frames rest, to kill in replacing the frames, or in closing the hive, as in the old ways of shaking; and as no bees are killed, the colony is not specially irritated, and few or no stings received."

"Good! But what about the queen?"

"When you come to the frame she is caged in, shake it the same as the others, for she will not be hurt now that she is not laying; and as soon as you have the queen-cells which may be on that frame cut off, remove the cage and set the frame in the hive. Now remove the cork from the cage and hold the open end of the cage near the entrance where the bees are running in with fanning wings, when the queen will leave the cage and run into the hive with the bees the same as does any queen when a swarm is being hived."

"That is easy, I am sure."

"Yes; and, what is better, you will see those bees go to work with a will, carrying into the sections all honey which may have accumulated in the cells from which the

bees have emerged during the last ten days, so that the queen may have room to lay without any further idea of swarming, unless the season should be long drawn out."

"But I shall lose ten days in bees, shall I not, as no eggs were laid while the queen was caged?"

"Yes; and this might be against the plan where the honey harvest is one which continues without interruption throughout the whole season; but in any section where only one or two or three sets of bloom, like clover, basswood, and buckwheat give the surplus honey, then the stopping of the queen from laying during this period of ten days is a blessing rather than a curse, as the bees from such eggs would come after the harvest was past, hence would become consumers instead of producers."



What not to do is often as important as what to do in the apiary.



Good stock is essential to good honey crops, and is cheap at any price.



Improve your own stock, or buy the best stock at four times the cost if necessary.



One good queen is worth half a dozen of the ordinary kind; so, get good ones.



My! "A cold spell now on and great flakes of snow are falling," says editor Root, page 641—in May, when the Southerners are complaining about hot weather and having "good old summer time." It is quite refreshing during such warm weather even to read about "the falling snow."



As soon as one crop is out of the way, get every thing in readiness for any other flow that *might* come; then you will not be nearly so likely to be caught by surprise, and you will have less occasion to pull your hair and mutter things like "My! had I only had every thing in shape to catch that sudden unexpected flow of fine honey, I should be just so much the richer. Now I am only wiser." Yes, and next year do it all over again!



The Weather Bureau is made for the bee-keepers as much as for any one else, and

there is no excuse for their not taking advantage of its lessons and profiting by looking ahead. It is true that a good many people do not believe in weather forecasts, and in foretelling what the season will be. Many of the bee-keepers, however, make good use of these privileges. To be able to know, pretty well at least, what the season will mean for the bee-keepers helps much in preparing for it. A record kept of preceding years will help much in deciding upon the outcome of a season that opens and continues like one in some former year. Too many of us "wait to see," and are like the Dutchman who said, "Ich never predigete der veter till der rain he be gumming down alretty."

ANNUAL MEETING OF THE TEXAS BEE-KEEPERS' ASSOCIATION, COLLEGE STATION, TEXAS, JULY 10, 11, 12, 1906.

The date for the next session of the Texas Farmers' Congress on the Agricultural and Mechanical College grounds has been set as above. The sessions will begin at 9 A.M. on the 10th, and adjournment is provided for at 10 P.M., July 12.

The Texas Farmers' Congress is indeed a unique organization. It comprises some fifteen State agricultural organizations. The Texas Bee-keepers' Association is one of these. Meetings of the individual sections of the congress that is meeting, of the separate associations, are held in the morning, from 9 A.M. until noon, in different rooms of the institution halls. During the afternoon and night sessions the sections all meet in a body in Assembly Hall. This leaves three independent half-day or morning sessions for each association, the rest of the time being taken up in congress sessions. Inspection of buildings, departments, the farm, apiary, stock, cattle, etc., is provided for in the evenings.

Much good, indeed, results from these gatherings. About 3000 delegates, representing the varied industries of the State, gather here. The bee-keeper's hum is not absent.

The program of the bee-keepers' section is as follows:

Opening prayer.

The annual address by the President.

Reading of minutes of last meeting.

Report of the Secretary-Treasurer.

Business of the Association.

Discussions.

"How can this Association be made to be more effective in its work?"

Arrangements and entertainment of the National Bee-keepers' Association at San Antonio, November 8, 9, and 10.

The question-box is to be one of the main features of the convention, and all bee-keepers are invited to ask such questions as are of most importance to them.

LOUIS H. SCHOLL,

Com. on Program.

Secretary-Treasurer Texas Bee-keepers' Association.



IS THIN SUGAR-FED SYRUP, WHEN STORED AND CAPPED BY THE BEES, THE SAME AS HONEY?

Some Interesting Experiments.

BY W. A. SELSER.

There has been considerable discussion in the past few years at different bee conventions and in the press, both by chemists and bee-men, whether a very thin syrup, about the consistency of nectar from the flowers, fed to the bees, after being deposited, evaporated, and stored by them in the comb, would be practically the same as honey; and a statement has been made that chemists could not detect the difference between this sugar-fed syrup and the pure article gathered from the nectar of plants. In fact, a noted chemist in the West made the statement that there would be absolutely no difference, chemically speaking, between the two; that this thin syrup, slowly fed, would undergo in the stomach-pouch of the bee a complete chemical change, and, after the conversion, would be the same as honey, except that it lacked the essential oils.

The writer has always taken a very strong stand against this statement, claiming it was absolutely false, and that there is a vast difference, both chemically and otherwise, between the nectar when first produced in the plant and in any other artificially made syrup, basing his opinion largely upon analytical experience, coupled with the idea that God places the nectar in the flowers to attract the bee for fertilization and the use of man, and that no agency of man is equal to the work of God.

This has been the first year in many years when atmospheric and climatic conditions have been favorable to test this experiment correctly; i. e., from the 12th day of July to the 5th of September no nectar has been secreted in any plant in the vicinity.

In July, 1905, I selected from about 25 hives two Danzenbaker hives in exactly the same conditions, composed of a vigorous Italian queen, six frames of bees and brood, comprising about 25,000 bees and two frames of empty comb. I placed these hives within 2 ft. of each other, some 300 yards from the main apiary, at a time when there was absolutely no nectar coming in from the field. During part of the time of this experiment (lasting six weeks) I had each of these experimental hives covered over separately with a tent during the day; and, aside from any other precautions, the results of the ex-

periments themselves show very conclusively that there was no nectar gathered during this period.

My first experiment consisted of feeding a solution to each hive, consisting of one part cane sugar, polariscope standard 98.7 to three parts water, specific gravity 1.1240. A quart of this was fed slowly in six hours in Boardman entrance feeders. After continuing this for a period of ten days, then waiting four days for perfect evaporation and transformation by the bees, I opened the hives, took out four different samples from different locations from the two hives and supers. The first sample was from the capped product out of a frame directly over the capped brood, specific gravity 1.3810, and removed them to the laboratory, situated within a few yards of the hives. The polariscope test showed a dextro-rotation of 7.3, and, after inversion, a levo-rotation of 11.4. (All pure honey shows a levo-rotation, or, in other words, turns the plane of polarization to the left.)

The second sample was taken from a different position in the brood-chamber—the same specific gravity, and showed a dextro-rotation of 7.7, and, after inversion, a levo-rotation of 13.

The third sample was taken from uncapped product in the brood-frames from the first story—specific gravity 1.3551, and showed a dextro-rotation of 18.7, and, after inversion, a levo-rotation of 16.

The fourth sample was taken out of uncapped product in the shallow frames in the super—specific gravity 1.3426, showing a dextro-rotation of 22 and a levo-rotation, after inversion, of 15.

Not satisfied with this very beautiful showing of exactly the amount of the inversion of the syrup in the stomach-pouch of the bee, I proceeded to feed, in the same careful way, syrup, one part sugar and four parts water—specific gravity 1.0902. After feeding this slowly for the course of a couple of weeks, as before, I took out the first sample from capped product from the brood-frames—specific gravity as before, showing a dextro-rotation of 10.5, and, after inversion, a levo-rotation of 13. I then took a sample of the product from the brood-frames, half capped and half uncapped, specific gravity 1.3650, showing a dextro-rotation of 9.4, and, after inversion, a levo-rotation of 11. I then took a sample of all capped product from the brood-chamber—specific gravity 1.3942, showing a dextro-rotation of 10.5 and a levo-rotation of 13.

The results of this experiment will be apparent in reviewing the figures of the first and second experiments, that, the greater the difference between the specific gravity in the sugar-fed syrup and the finished product, the greater was the inversion in the stomach-pouch of the bee, and that which was hastily deposited by the bee from the fed syrup underwent the least amount of inversion by the bee. The graduating scale of this experiment shows how the amount in proportion of the inversion

in the stomach-pouch of the bee proceeded according to the ratio of the specific gravity of the finished product. In other words, this sugar-fed syrup, in both of the proportions as fed, showed beyond dispute that it was sugar-fed and not nectar gathered.

Now for illustration let us suppose that the difference between the figures of the dextro and levo-rotation represented exactly the amount of inversion in the stomach-pouch of the bee. The smaller these figures of difference, the greater the amount of inversion by the bees. In the first experiment we fed one part of sugar and three parts of water, specific gravity 1.12+. We have one sample +18-16, specific gravity 1.35+. In this there are 34 points that have not been inverted by the bee. Again we have +22-15, specific gravity 1.34, and 37 points not inverted by the bee. In the second experiment, we have one part sugar and four parts water, specific gravity 1.09+; then we get +9-11, 1.36+, specific gravity or 20 points, not inverted by the bee, and again +10-13 at 1.39+, specific gravity. We have 23 points not inverted by the bee, and in pure honey there are no points not inverted by the bee; and with the more water fed giving the lowest specific gravity, showing the difference in this last case of over 30 fractional points in its specific gravity between fed syrup and finished product, it still gives 23 points not inverted by the bee. Time was given for the bees to work up this product, and every other advantage it was possible to give the bees to produce the results as claimed was given, and the result shows beyond controversy, in the mind of the writer, that no sugar syrup of whatever character, fed to the bees, will ever be changed to actual honey as gathered from the nectar of plants, and, therefore, that no capped comb product can possibly be honey unless it is nectar gathered. So that, also, from a purely chemical standpoint, there is a vast difference between the product gathered by the bees from fed cane-sugar syrup and pure nectar; viz., cane sugar is a chemical individual represented by $C_{12}H_{22}O_{11}$, and in the breaking up, on inversion, it takes up one molecule of water, H_2O , and is $C_{12}H_{24}O_{12}$, while honey is a chemical mixture, represented by dextrose $C_6H_{12}O_6$; and levulose $C_6H_{12}O_6$, with a mixture of pure sucrose. Now, the sugar-fed syrup, capped over as honey by the bees, varies in the chemical analysis (my assumption) from $C_4H_8O_4$ to $C_8H_{16}O_8$, and is immediately branded by the chemist as a different composition, and, therefore, can not be honey.

Another very important result of this experiment has proven the question that seemed to be in doubt in the minds of scientists, whether phosphoric acid, which appears in greater or less quantity in all pure honey, is a product of the bee or a product of the plant; in other words, whether phosphoric acid in honey is of plant or animal origin.

I took the very thin syrup that was fed to the bees in the last experiment, specific

gravity 1.0902, and evaporated it to specific gravity 1.3426, and, upon analyzing it, I found absolutely no trace of phosphoric acid. I then took the lowest specific gravity of the finished product in the first experiment, specific gravity 1.3426, and found that this contained $\frac{1}{100}$ per cent of phosphoric acid, the average amount in pure honey, and was deposited by the bees at a time when there was absolutely no nectar coming in, as previously explained, showing that phosphoric acid comes directly from the animal rather than the plant.

The point at issue is, whether the nectar gathered contained phosphoric acid or whether the bee, in its inversion of the nectar, adds phosphoric acid. This experiment would show that it is the bee in its inversion that adds the phosphoric acid, and, therefore, directly, it is of animal origin.

ALEXANDER'S HONEY-TANKS.

The Advantage of Strong Heavy Construction; How to Introduce Large Numbers of Queens.

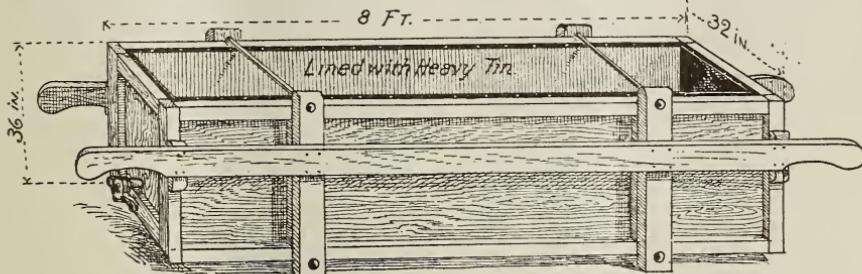
BY E. W. ALEXANDER.

In answer to many recent inquiries as to the size and shape of our honey-tanks I will say that they are 8 feet long, 32 inches wide, and 36 inches deep, inside measure, and are made of $\frac{1}{2}$ pine and hemlock lumber, the ends set inside of stout cleats. The bottom is cleated, also the sides. Here we have a piece of 2×4 joist bolted with $\frac{1}{4}$ -inch rods from one piece of joist to the other, one rod across under the tank, the other on top.

After you have them empty in the fall, wash them out with hot water; and as soon as dry wipe them well with a cloth dampened with sweet oil. This will keep them from rusting, and, with other proper care, they will last a lifetime and remain as bright as new. A tank of the above size will hold about 5000 lbs. of extracted honey, and is the cheapest and most convenient article for storing honey in I have ever seen. I think ours cost about \$16.00 apiece some 20 years ago. Make them stout in every way, for but few realize how 5000 lbs. of honey will make them bulge out unless made strong. You can make them any size you wish, but I wouldn't advise having them over 32 inches deep. Ours are 4 inches deeper than I wish they were.

HOW LARGE NUMBERS OF QUEENS ARE INTRODUCED.

Another question I wish to answer, which many are inquiring about, is how we introduce the 300 or 400 queens every year which our system of management requires. This is one of the knottiest of questions, and one that has cost bee keepers thousands of valuable queens. It has cost us so many that we now seldom try to introduce a queen into a full colony. We would much rather have our young queens hatch in what would be considered a small colony, and then as soon as she commences to lay build it up in two or three days into a good strong colony by giving them combs of hatching brood. In this way we never lose a queen, whereas by the introducing method many times the strange queen will be allowed to live only until she has laid eggs four or five days, and the bees



ONE OF ALEXANDER'S STORAGE AND EVAPORATING TANKS FOR EXTRACTED HONEY.

We have one narrow strip of board on each side, which projects about 8 inches past the ends of the tanks, and forms handles to carry them by. This is very convenient. It is not necessary to make the sides or bottom tight. If there are cracks $\frac{1}{2}$ inch wide it will do no harm, for the tanks are to be lined with the heaviest and best quality of tin that you can procure. Have the tinsmith put a large molasses-faucet at the bottom of one end to draw off your honey through; also see that every seam is well lapped and soldered or it will make a bad job if one commences to leak when full of honey.

begin to have plenty of larvæ to rear one from; then they will kill their queen and rear a young one in her place. We have lost hundreds of valuable queens in just this way, so for several years we have not introduced many queens into full colonies except when we have a surplus that we hardly know what to with.

I think the day is not far distant when a large per cent of the queens that are bought from queen-breeders will be bought in a nucleus, and then built up into strong colonies by the purchaser. This is a fine way to make increase, and at the same time procure choice queens and avoid all loss and

trouble in introducing. I think 100 good three-comb nuclei purchased in May, and properly cared for, will furnish enough extracted honey during the season to pay their first cost.

If not convenient to get your queens in a nucleus, then introduce them into small colonies that have no uncapped brood, especially if the queen is a valuable one.

I think queen-breeders are often wrongfully accused of sending out hybrid queens when the queen they sent was all right; but shortly after she commenced to lay she was superseded by a young one reared from her brood, which was mated, and the purchaser never knew that the queen he bought was killed shortly after she commenced to lay.

If you have any questions to ask me, please ask them through GLEANINGS, for I can not take time to answer so many private letters separately.

Delanson, N. Y., March 20.

[I saw these tanks when I visited Mr. Alexander. Two of them were put in a building large enough to receive them and yet give room for a man to get in and around them. The two buildings were very nearly alike, each containing two tanks or what would be a total capacity of 20,000 pounds. To each of these buildings was a conductor pipe running on up grade to the extracting-house in the center of the bee-yard. As is well known perhaps, Mr. Alexander extracts just before the bees cap the honey. As I saw it running out of the conductor-pipes it was very thick, but to further evaporate it, it is allowed to stand in these shallow tanks in a small building where the temperature will rise to a high point in mid-summer. This will explain why Mr. Alexander is able to extract without allowing the bees to cap the combs. Should any one desire to make a honey-tank of this description he will need to follow carefully the details here given. A long oblong tank of this kind would bulge very badly at the sides unless it were braced securely with 2×4 's at top and bottom edge and further braced by cross-pieces and iron rods or bolts.—ED.]

THE CYRENIUS HIVE-LIFT.

How to Tip up a Hive for Examination; Bisulphide of Carbon vs. Sulphur.

BY F. GREINER.

In response to a letter from a New Jersey friend in which he is asking about the best hive for extracting, and the Cyrenius hive-lift, etc., and in consideration of what was said in regard to the latter device at the late New York State Bee-keepers' meeting in Geneva, I would hereby beg for a little space to ventilate these matters.

To begin with, the Cyrenius hive lift is a clever device, easily adjusted, and intended to hold together securely the hive and super

upon it, while the whole is tilted up for examination of the combs from the under side. For illustration and description see GLEANINGS, 1905, page 774. I find that, when a brood-chamber is filled full of good combs, nearly all the queen-cells are started at the bottoms of the combs. By tilting the hive, not necessarily laying it clear over, we are enabled to see any queen-cells under construction when the bees are smoked back a little. If we do not see any cells we may safely conclude that no preparations for swarming have so far been made. My New Jersey friend fears that, with his deep (?) Langstroth frames, the cells may not be built along the lower edge of the combs, and he would, therefore, like a very shallow hive in two sections, somewhat like the Heddon. He proposes a shallow frame of five inches. I am in position to tell him how it works with the five-inch frame hives as well as with Langstroth frame hives and others with a still deeper frame by two inches. I have them all in use, and would say that I have for the past two seasons, with infallible certainty and very little trouble, found the colonies which were bent on swarming in any of these hives as easily in one as in the other. I would, therefore, advise my friend not to change from his ten-frame Langstroth hive to the shallow five-inch-deep frame hive nor the Dansenbaker hive—not on that account, particularly as he would be unable, as he says, to sell bees to others in his vicinity—if they were in other than Langstroth hives. Two shallow-framed hive-bodies as a brood-chamber are sometimes an advantage, sometimes they are a great disadvantage. For the production of extracted honey it is extremely doubtful whether a better hive combination will be found than the ten-frame L. hive with full-frame supers.

That my friend should be troubled with swarming seems strange. With plenty of storing room in shape of empty combs, a large entrance to his hives, and shade, there should be no swarming with our ordinary bees. If he has Carniolans, then I would advise Italianizing his whole yard as speedily as possible. The Carniolan bee is a good one for comb honey, but not so desirable for extracted, while the Italian bee would be hard to beat for the production of extracted honey.

Right here it might not be out of place to give a pointer on tilting up a hive properly. I have had the fewest mishaps when I proceeded from the rear of the hive. In tilting it up from the front it brings it in danger of slipping off from the bottom-board unless we take the precaution to move it forward just a little to prevent its slipping. If the hive-body were hinged to the bottom-board at the back it would work well to tip it up from the front; but as this is not the case, and the bottom-board projects in front with the most forms of hives, it will be found much more convenient to tip it up from the back as in Fig. 2.

In all localities that I am familiar with the

bees always gathered propolis enough to cement the supers to the hive-bodies solidly in a very short space of time, and I do not find it necessary to make use of the Cyrenius hive-lift. I have been taken to task by some friends for saying this, implying that I wanted to "kill" a good thing. I

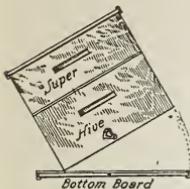


FIG. 2.

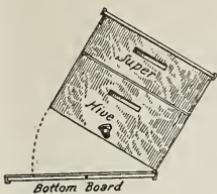


FIG. 1.

certainly don't. But if it is possible and practical in many localities to accomplish the same object without going to the trouble of affixing the hive-lift, why use it? In localities where no propolis is gathered (and I am glad to learn that there are some), the hive-lift is a necessity.

The last question of my New Jersey friend relates to keeping moth out of extracting-combs. I might refer him to the standard text-books. But as I was taken to task at the Geneva bee-keepers' meeting for saying what I did in the apicultural press as regards bisulphide of carbon versus burning sulphur, perhaps an explanation would be proper. I purchased bisulphide of carbon at our country drugstore. I was obliged to pay 35 cents per pound. At this price it was too expensive to use in quantities necessary to kill the wax-moth larvae in my extracting-combs and I preferred to use sulphur as I had heretofore, particularly as I had failed with the bisulphide of carbon in accomplishing the object of using it in different proportionate quantities on the different stacks of combs, but perhaps not strong enough. I placed the drug in a sauce-dish on top of the combs, and covered up all as close as practical. Some friends thought I should have done differently. I can assure them that I usually employ the easiest method. Long years ago I found that sulphur fumes would settle, being heavier than air, and I have always burned sulphur on top of the stacks of honey or combs, and thus destroyed the wax-moth larvæ, and naturally would do the same with the bisulphide of carbon, for this is of the same nature. At the Geneva convention I was told that bisulphide of carbon could be had in Syracuse at 10 or 12 cents per pound, and that it ought not to cost me more than 14 at the most. Our old friend Betzinger said he would not "monkey" with sulphur when he could buy the bisulphide as cheaply as he could, and as long as the latter was so much simpler to use. When I can buy bisulphide of carbon at 14 or 15 cts. I think I shall use it again, especially as there is no danger of staining section honey with it, which is the case when burning sulphur in too large quantities.

Extracting-combs need no looking after in this climate during the winter months; and if kept carefully covered up or in a tight room they will be all right till needed during the honey season. The trouble commences after the combs are taken off from our hives.

We must then fumigate them from time to time till cold weather comes again. The *modus operandi* is simple enough. In an empty hive-body we either burn a quantity of sulphur on top of a stack of combs, covering up tight, or we evaporate bisulphide of carbon. Our friends across the water burn the bisulphide of carbon. There is no danger connected with this. It burns as alcohol would. The liquid is not explosive; but when the bisulphide has formed a gas, then is the time we have to exercise care or we may produce a destructive explosive. A room should be aired out in which bisulphide of carbon has been evaporated before coming in with a lighted lamp or striking a match.

Naples, N. Y.

COMB HONEY BY THE TWO-QUEEN SYSTEM.

Strong Colonies for Comb and Weak Ones for Extracted Honey; the Advantage of a Dual Colony in Each Hive.

BY A. K. FERRIS.

[This article follows right on from the one given on page 586 in GLEANINGS for May 1. From now on this system of non-swarming will be given in consecutive issues. For further particulars see editorial elsewhere.—ED.]

It has been well said that "it is more necessary to have a strong colony to produce comb honey profitably than extracted." In other words, run your weak colonies for extracted and your strong ones for comb honey. But with the two-queen system weak colonies are a thing of the past, as we have noted in the preceding articles on extracted honey. Strong to exceedingly strong colonies are all we deal with during the flow. On the other hand, a weak colony shows less disposition to swarm than a strong one. For this reason many run their strong colonies for extracted and their weak ones for comb.

In the two-queen system we take advantage of *both* conditions, and turn both in our favor. In the first place, we have taken a very strong colony and made two weak ones with only a thin partition between them, each having a queen and each receiving heat, one from the other, and consequently both winter well; yet the fact remains that they are in reality weak colonies, and they therefore show no disposition to swarm unless their part becomes crowded; but as each receives the benefit of the other's heat they build up exceedingly fast in spring. In these hives with only a thin partition between the two swarms, the spreading of brood can be practised earlier, and without the danger that is found in a single colony. In this way, when each half has worked up to five or six frames of brood, and is strong in bees, I

never hesitate to add a full story of combs, alternating them with the combs of brood. This induces the queen to lay to her full capacity; and, as nearly all have noticed, a queen in a weak colony will just spread herself when she does get the chance. I am fully aware that many do not believe in the spreading of brood; and I agree that, if practiced to excess, it is a detriment; but if intelligently done it will well pay for the time and labor many times over. It is also a means of keeping down the swarming fever; for if the brood-nest is clogged with honey, as it sometimes is, they will sometimes swarm rather than take it out to accommodate the queen in laying. Again, when the brood is mostly in one end, change end for end with a couple of combs. This induces brood-rearing the full length of the comb. I want combs that are practically full of brood, and also all I can get of them; and the way that will get the most of them is what I want, even if it does take a visit or so more. It means, many times, the amount spent in labor, in returns later on. In this way we build up a mammoth colony, and at the opening of the white-clover flow we have all the way from sixteen to thirty combs of brood in each double colony, according to conditions and prolificness of queens. At this point I dequeen the same as for extracted honey, though some may prefer giving a ripe queen-cell instead of a young laying queen. However, with the easy way to control swarming and detecting queen-cells (described later) it is practically immaterial; and, if any thing, I prefer the laying queen as she gets to laying from eight to twelve days earlier than if a cell is given.

Queenless bees will enter the sections more readily than bees having a laying queen; but with the comb-honey attachment (described later) they will enter the sections readily any way.

Madison, Wis.

COMB FOUNDATION.

When and How to Use it; How to Prevent Sagging; a Valuable Article.

BY R. F. HOLTERMANN.

The commercial value of extracting-combs has often been under discussion, and a very varied estimate put upon them. It will be found that, if a sheet of foundation between medium and light be put in a frame, and this be inserted in the hive, and the bees draw out and build upon the foundation when the comb is completed, the bees have just about doubled the amount of wax. To a bee-keeper who has 50 colonies of bees (say he buys them), which he intends to run for extracted honey, and who has not in stock any combs for the supers, to such a person combs up to a certain number are very valuable. With nothing but comb foundation in the extracting-supers it is a difficult matter to draw the bees into the super. To put up a comb of brood, and replace it by a

sheet of foundation, is, under such circumstances, common, and perhaps the best practice, but it is very far from the equal of having the drawn comb. How much, then, can a person afford to pay for combs built in proper frames, and on comb foundation wired? Until I had at least one-third to one half the number of surplus combs required for the first extracting-super I would pay 25 cts. for each comb, and, of course, as much less as I could get them for.

As years go by I have less and less inclination to put any thing but full sheets of foundation in frames. Even in the production of comb honey, when all that is for or against the practice of starters in the frames of the brood-chamber has been weighed in the balance, in my estimation the practice is found wanting unless one can secure at east \$1.75 to \$2.00 per dozen for No. 1 and "Fancy" comb honey, sections $4\frac{1}{2} \times 4\frac{1}{2} \times 7$ to the foot.

There are many bee-keepers who balk at the idea of buying full sheets of foundation for their hives; there are many who are not prepared to make such an outlay upon bees of which they know little, and of which profitable returns are to them problematical. Truth to tell, I have not much use for bee-keepers who are not prepared to put time, thought, or money into their business. I never rebel at people who keep bees about me so long as they keep them properly; but the slipshod bee-keeper is a constant menace to those who are about him, be he a bee-keeper on a small or on an extensive scale. If any of the readers of GLEANINGS are inclined to keep bees on "the cheap," grudging the expense of foundation and the like, let me say, comb foundation is to the hive what a good solid foundation is to a brick or stone house. Put a poor foundation under the house, and it is a constant and ever present annoyance, menace, and, in the end, loss to the builder. Or for the bee-keeper not to buy comb foundation for his apiary, on the ground of expense, after getting good hives would be something like the dairyman building fine well-ventilated and properly constructed stables and barns, and then running around buying \$25.00 cows which, for the same feed and care, will give him only half the milk in return that \$50.00 cows would give.

To those who are beginners it might be well to say that comb foundation is valuable over the empty frame in that the bees have a guide to build straight comb, and in that the bees have a greater inducement to go into the compartment where the foundation is placed, be it brood-chamber or super, providing the frame is properly spaced. I say "*providing the frame is properly spaced,*" because of an experience I have had. My hives and supers are 17 inches in width inside; these normally contain 12 frames. In spacing the super frames I now put ten frames in the 17-inch space. The bees will take to foundation spaced 12 frames to 17 inches much better than when the foundation is spaced at the rate of 10 frames to 17

inches, yet after the comb is once built I find no difference in the readiness with which the bees enter the supers with frames more widely spaced. It may be that, when building the comb, the bees want to construct it so that it is right for a brood-chamber, while, when entering the supers for a honey-flow, it is with the immediate object of storing surplus. No doubt many may think that we find wide combs in box hives. True; but there are then reasons which compel the bees so to build. In the above, let me say when reference is made to the 17-inch spacing for 12 combs I do not mean to say foundation in this way is more readily accepted than when spaced $1\frac{1}{2}$ in.; but I speak of greater variation. That bees will enter frames with foundation more readily than when there is none, can be seen by sections. Those with drawn-out comb and foundation are sometimes filled or almost filled out with honey before the empty section has been touched. This is particularly true if the flow is moderate or light. I will admit that, in a very heavy flow, the bees sometimes appear to delight to build comb, and will build it in an empty frame when there is still plenty of room for storage in the combs at each side of it. To build on such a flow is, however, unsafe and unwise; and, more, such a comb is almost if not invariably drone comb.

Another advantage in comb foundation is, of course, that material is supplied the bees which would require honey, and the time and energy of the bee to produce. I am inclined to think, but am not positive, that the secretion of wax, while largely voluntary, is partially involuntary. If involuntary, it is so only after and during a good honey-flow, when the bees have become thoroughly fat; for bees will vary just as much individually in percentage of weight as any other animal when in and out of condition. When the heavy honey-flows are on, where bees gather from 15 to 26 lbs. of surplus in a hive, then the bees can not build comb rapidly enough to store and ripen the nectar, and, through lack of storage room, the bee-keeper must lose a portion of what he might harvest had he given the bees comb foundation.

The time when bees are most disposed to draw out foundation is after they have swarmed. If short of drawn comb, such stocks should be given foundation in the brood-chamber and super, and, by taking away partially drawn comb, putting these in the supers of colonies not swarmed, and the swarm kept at comb-building as long as they take readily to the foundation.

Another very fair way to force bees at the beginning of the honey-flow into the supers, and accept foundation, is to uncapping all the honey capped in the brood-chamber. If the brood-chamber cells are occupied with either honey or brood, and it would be useless to super them unless they were practically in this condition, the bees can not find a place for the leaking honey, and they are forced to accept the foundation in

the super, and build comb in which to store the honey.

As to the method of fastening in foundation, I prefer the hot-plate machine by means of which the edge of the foundation is heated to the melting-point. The hot plate recedes, and the foundation falls upon the under side of the top-bar and is there attached. Next to that I use a rubber bulb and glass tube of large size. By means of this the melted wax and resin is distributed along the edge of the foundation and the lower side of the top-bar. I use two large boards, each having three minor boards over which the frame will half slip. The foundation is first placed upon this; the wired frame next, and the foundation is inserted, and the wire put imbedded before the frame and foundation are removed. Of course, a bee keeper with only a few hives, and inexperienced, has a reasonable excuse for using a groove in the top bar, or some such device; but an extensive bee-keeper is not only thus weakening his top-bar but is wasting large quantities of foundation, and worse than wasting it, for it is much needed on the lower side of the sheet in the frame. Foundation should not buckle, but touch at the sides; better still, the upper half touch the lower, almost so. When this is the case the bees attach the sheet to the side-bar almost as quickly as they go on it, and relieve the sheet of a good deal of strain and a proportionate danger of sagging. The sheets could be cut off in this way, even by an automatic cut-off machine. I should like to see foundation made so the mill will roll out a sheet as wide as the Langstroth frame inside the side-bars. By hanging the sheet in as it comes from the mill, it is much stronger than when turned the other way. However, unless swarms are thrown upon the foundation, when there is an extra strain, I find three strands of horizontal wire and light brood foundation with the Weed process all right. I have to say Weed process, for it is less liable to sag than the old dipped process — at least, of such as I have made and used.

WHY FOUNDATION STRETCHES.

In the prevention of sagging foundation, there are a good many points to be considered. Some of these I know, and probably there are others. Naturally, beeswax is not subjected to the same strain which a sheet of foundation suspended only from the top is. The bees build a little septum at a time, and immediately add cell-walls to strengthen it. The comb is attached to the top, and circles more or less toward the center as it is built. When the swarm is put into the new hive, or enters it of its own accord, it is generally the heat of the day, and the bees are much excited and give off great heat. What can we expect but sagging, with a hive standing in the sun, poorly ventilated, and with excited bees clustering on and covering these sheets of foundation? When a swarm is put upon foundation the hive should, for 48 hours, be shaded. There should be plenty of bottom ventilation as

well as in the super; and an empty extra brood-chamber without frames put under the proper or true brood-chamber is a very great help, not only to the proper drawing-out of the brood-chamber, but to make the bees contented in the hive. Next, to get evenly built combs the bees must not be given too much room. This is true of brood-chamber, extracting and comb-honey super. Give the bees no more foundation than they can well cover, and they will do their best work. If more surplus comb is desired, honey must be left in the combs already full, and foundation added. Many a time I have seen bee-keepers add frames with foundation just before extracting, only to have the bees after extracting first utilize the drawn comb, and perhaps chew holes in the sheets of foundation, these holes to be filled with drone-cells when the comb is built out.

By means of taking away a portion of the frames in the brood-chamber, two days after the swarm has been thrown upon them, and replacing with dummies, the same beneficial results can largely be secured that are sought by hiving the swarm on starters and the drone-comb done away with. Whether in brood-frames, surplus combs, or sections I see in economic bee keeping no place for any thing but full sheets of foundation, and I have to buy every pound I use, or at least have my own wax made into foundation, which is the same thing. In moderate flows or in heavy flows I see the need alike. It should be avoided, to have foundation in the hive when the bees do not require it.

Brantford, Canada.

[This is one of the best and soundest articles on foundation that we have ever published, and I commend it to the careful attention of every reader. Especially would I place emphasis on Mr. Holtermann's treatment of a newly hived swarm, to keep it contented and from overheating and stretching the foundation.—ED.]

FOUL BROOD.

Some of the Late Statements Condemned;
Italians not Proof Against
the Disease.

BY J. E. CHAMBERS.

During the past year I have noticed many articles appearing in GLEANINGS, at different times, claiming that foul brood could be cured simply by changing queens; and lately Mr. Simmins and even such an excellent authority as Mr. Alexander, seem inclined to support that theory—see page 1318, Dec. 15, and page 22, Jan. 1. Without desiring any controversy with any one, I wish to say, for the sake of the pursuit, that I consider such doctrine sure to cause disappointment and even ruin; for you, Mr. Editor, are not far wrong when you say, page 23, that you can not understand why honey that remains in the hive where foul brood has been ram-

part, and which has the germs of the disease in it, will not reinfect the new brood. I have had a good deal of trouble with foul brood in my own apiaries, and I am as certain that any treatment, no matter what it may be, that does not contemplate the removal of every drop of infected honey from the hive will be a failure. For several years I made numerous experiments, in many cases boiling the honey and feeding it back, in order to satisfy myself whether or not it was as contagious as report said. In all cases I took away every drawn comb, and gave foundation; but in every case the disease returned after a short time. I also tried the plan of taking away all combs of honey, but leaving the empty combs and allowing the bees to rear and mate a young queen. In a few cases the disease was apparently cured; but, I think, it always returned. However, I found out that, if every particle of pollen as well as honey was removed, the dry combs would be safe to use. But I would not advise the novice to take any chance with even these, for, to my certain knowledge, while I do not doubt the entire sincerity of all who believe that a cure can be effected by simply allowing the diseased colony to rear a new queen, I say emphatically it is a great mistake, and in saying this I am aware of the belief among many that these men who are authorities of no mean order should know more about foul brood in the infected countries of England and America than a mere novice; but to such I only want to say that I have had five years of steady work and experiment to rid my apiaries of the scourge, and I have succeeded to my entire satisfaction, but not by the methods advised. The old reliable McEvoy treatment, rightly administered, does the work every time.

Another foolish and in some cases fatal mistake is the belief that Italians are in any way proof against foul brood. During all these years I had one apiary of Italian stock from over a dozen of the best breeders in the United States, and here right among these bees, said to possess such immunity, is where the disease first started—brought, as I believe, from a distance of several hundred miles; but whether or not the infection was in the candy or carried by the bees and queen I am not able to say. At any rate I know it was not known here until brought by Italian bees; and I also know that it remained in that apiary as long as there was an Italian colony left; and I also know that very few of my Carniolan colonies were ever affected by it; and it never gained any foothold in my three Carniolan apiaries, but the Italians were wiped out or I had to requeen with pure Carniolan stock, since which there has been no foul brood in this yard. However, I do not claim that the Carniolans are proof against it, for I know that there is not a race of bees on the face of the earth that is proof against it. When once well started, the boasted Italians were in my case as helpless to resist its ravages as a rabbit would have been

when caught between the jaws of a panther. From what I know I have been forced to the conclusion that the most that can honestly be claimed for any race is this: The prolific races are better nurses, and rear more brood, and are, therefore, more inclined to clean up the brood-combs, spread out more in the main brooding season, occupying more of the formerly unused combs, and, consequently, are able to stand the ravages of the disease longer. But to say that any of the races are able to resist it when well started in, in my humble opinion, very simple.

In order to ascertain how far right I was in this matter I took several powerful colonies, and, after cutting a hole through a comb in the center of the brood-nest, I fitted in a small piece of the diseased brood from infected colonies, and in every case the disease appeared within two to three weeks, and that is just how immune the best colonies of Italians I ever owned were.

Now in conclusion I want to say that all men have a perfect right to their say; but when a doctrine is dangerous to the interest of our beloved pursuit, I think if there are any who know they should step forward and sound a warning; and this much I positively know, that *Italian bees are not proof against foul brood; neither is there a possibility of curing the disease as long as there exists a drop of the diseased honey in the hive.* Put that down in your little book, and keep it for future reference. I am willing to stand back of this, for with me it is not guess-work, nor jumping at conclusions; but, on the contrary, it is from the most trying experience of my life.

Vigo, Texas.

[If you will read over again what Mr. Alexander and Mr. Simmins have said I think you will see you have read more into their statements than the actual construction of the language specifies. Neither Mr. Simmins nor Mr. Alexander has claimed that the mere removal of a queen will cure the disease. Both state that such removal was a help, and should be used only in connection with some other helps or conditions that assist in bringing about a cure. One of those conditions was a broodless hive for a period of three or four weeks, during which the bees have an opportunity to polish up the cells. Neither did either one of them, so far as I can discover, make the bald statement that Italians are proof against foul brood. On the contrary, they simply stated they were better able to stand it. Mr. Alexander or Mr. Simmins, I do not remember which, included Carniolans with the Italians.

But there is another factor that perhaps you do not take into consideration. Mr. Alexander, if you will read all he has ever said, made no claims concerning *foul brood*. That to which he refers was distinctly *black brood*. As I have elsewhere pointed out in this issue, it now appears that the black brood of New York may be the foul brood of England but not the foul brood of Ohio and

Wisconsin. If this is so, it is only within late years that we have had what is really European foul brood, and that, so far as I know, has been confined to certain counties in New York. The foul brood of Wisconsin, Ohio, Michigan, and elsewhere, is quite a different disease. Mr. Alexander, referring to this, told me personally that he did not know what his cure would do with the foul brood we have in Ohio.

There has been any amount of proof adduced to show that Italians resist this black brood (or European foul brood) better than ordinary black bees; but no one, so far as I know, has ever made the statement that Italians are absolutely proof against it.

Respecting foul brood, or the kind that is found in Wisconsin, Ohio, Michigan, and Canada, I think all of us will agree to your propositions. The most that any of us have ever said, and I said it myself, was that there was a *possibility* that the Alexander treatment *might* cure the Ohio foul brood. But, as you say at the outset, I expressed my doubts.

For authority for the statement that the black brood of New York and the foul brood of Europe are alike, you are referred to the bacteriologists at Cornell University, and to the bacteriologist in the Department of Agriculture, working under the direction of Dr. Phillips.—ED.]

FOUL BROOD.

Curing Diseased Stocks Without Medication;
Why Do Not the Stores Again
Start Disease?

BY SAMUEL SIMMINS.

[In January 1st issue, page 22 of this year, appeared an article from this same writer in which he showed that he has many years past advocated some of the principles so successfully carried out by Mr. E. W. Alexander in the curing of the disease known as black brood. In the footnote that followed I expressed my doubt as to whether the treatment would prove effective in the case of foul brood such as we have known in Wisconsin, Michigan, Ohio, and, years ago in the days of Moses Quinby, in New York. If Mr. Alexander and Mr. Simmins are talking about the same disease it explains why they agree.—ED.]

Many bee-keepers, including editors, having heard it said that foul brood and other diseases can be and have been cured without medicinal application, and with no destruction or mutilation of combs or hives, say at once the thing is impossible. In this they are unlike the editor of GLEANINGS, who, while somewhat skeptical about the matter, leaves his mind open to all the facts which may yet be presented. The one thing we all hope for is that the said cure may presently be effected under his own personal investigation; and this, doubtless, will occur in good time.

I quite agree with the editor that it is most unfortunate so much valuable material has been sacrificed in the past; but this terrible destruction was necessary where the owners had not yet known or realized the better way: otherwise even greater troubles would have occurred in those localities.

It certainly appears strange, at first sight, and incredible to many, that the stores already in the hive do not continue to cause trouble; but right here let me state that some scientists have been unable to discover any germs of disease in honey taken *carefully* from a foul hive. Cheshire discovered only a very limited number in various samples.

It must be considered that honey is mostly a germicide; and when we realize that the cure without medication is adopted only during the active season, and that by my method of swarming I leave only the young bees on the diseased combs without a fertile queen, the bulk of the old store is used up by these youngsters in warm weather, and as soon as they get a fertile queen the combs are seen to become one mass of brood.

Next, we have to consider that the spores, if existing accidentally in small numbers in the honey, are destroyed as they germinate during warm weather, as they must then do, for the reason that the germs, having nothing to thrive upon in the honey, can not be reproductive; while the foul cells, being already cleaned out by the queenless bees, or those having no fertile queen, there is no further addition of spores to the honey.

To my own mind the matter of the stores is not nearly so great a marvel as the further and continued production of clean, pearly-white larvae in the very cells the bees have so recently cleared of the foul matter.

But even this, again, is not so remarkable as the fact that certain queens can be placed at the head of foul stocks, with no preliminary preparation, and no interval, and yet soon after the bees of the new strain begin to appear the whole trouble gradually and surely disappears.

No one will disagree with the editor when he says that "we have demonstrated, time and again, that honey from a diseased hive will carry infection to another one perfectly healthy." But only think for one moment how this honey is removed from the diseased hive. Suppose the bees are robbing it, rushing excitedly over every thing and poking their tongues into every cell, crowding into dense clumps of living, writhing masses like something gone mad, which, indeed, is usually the case. Is it any wonder they take the plague back with them, even supposing the honey itself contained not a single germ of disease?

Then, again, if the honey should be extracted what is to stop diseased matter being added in the process, and such as never was in it while it stayed quietly in the hive along the margin of the diseased portions?

Suppose you take a knife, hoping to cut away the diseased brood, as many have needlessly and inadvertently done. Don't you see that the knife cutting through some foul matter also passes through some possibly hitherto untainted honey, leaving it running for the bees to clean up? But leave the bees (of the same hive) to do the cleaning-out business and they neither mutilate the

combs nor mix up the tainted matter with the stores.

I am strongly convinced that, in many cases of disease, when not far advanced, neither the honey nor the frames, nor any part of the hive, is affected beyond the space occupied by the actual malady.

Cheshire once told me how he took in hand a stock with its combs as bad as they could be with foul brood, and that in a few weeks he presented it to a committee of bee-men, in a perfectly healthy condition. This experiment was published far and wide at the time, and he claimed that it was solely by the feeding of phenol in the syrup that the cure was effected. Others have tried and failed utterly when using that agent; but my late friend did not himself grasp the great cause of his success.

The stock was almost depopulated, and had no queen. That was accident number one, and of necessity he gave a new and vigorous queen. The bees were far too miserable, and reduced in numbers, to hope to build up at all; therefore he gave them combs of healthy bees and brood, and that was accident number two. He, therefore, quite unconsciously, added the three most valuable items that would certainly help on to a successful issue—a new queen, fresh clean brood, and healthy bees. If these invaluable features in the case had only been realized by him, and insisted upon, many others would have succeeded, just as he imagined he had done when using phenol.

Heathfield, Eng.

[It is possible that a good deal of the honey in the combs of diseased colonies is not affected except through some manipulation of the apiarist himself. One can easily see how honey could be contaminated in the ordinary process of extracting, and throwing out possibly some brood with the honey. In any case, the average bee-keeper had better assume, in order to be on the safe side, that all honey from the infected hive may be diseased.—ED.]

LIGHTER GRADES OF BROOD FOUNDATION CONDEMNED.

Why it is Always Advisable to Imbed the Wires; Some Objections to the Shortened Top-bars.

BY E. F. ATWATER.

On page 208, Feb. 15, there is a discussion on the advantages of lighter grades of foundation. This is so contrary to my experience that, in my opinion, it is full of error. Even with fully wired frames the man who uses full sheets of light brood foundation is a heavy loser; and the worst of it is this loss continues as long as the combs are in use unless they are always used above an excluder so no brood is ever reared in them. But I want my combs all so perfect that they can be used in the brood-nest and mature the maximum of brood in a given comb

area. Look at that last statement of mine again, and remember that in it is expressed the whole story of most profitable use of foundation.

I have been "through the mill," in using such light foundation, with two, three, or four wires, with one, two, three, or four wires imbedded or not imbedded; and I say, avoid such light foundation, and imbed the wires; then wax the wires in place so that this line along the wire, usually the weakest place in a sheet of foundation, will then be the strongest. When Mr. Scholl confesses that he does not imbed the wires he gives away the whole plan, for he must leave the foundation not imbedded, so the sheet can sag; and a brood comb built on such a sagged sheet of foundation is a more or less sorrowful affair, and *always* unprofitable, no matter how much you "save" on first cost of foundation.

The theory of loose wires to allow sag is another idea that I want to discuss. The result may be a *straight* comb, all right; but if light brood foundation is used with those loose wires you lose enough brood area every year to offset, many times over, the increased cost of *medium brood* foundation, which is the lightest that can be used with the best results. What folly to pay out so much good money on hives and foundation, and then not have the maximum of brood-space in those hives, through a lot of sagged combs! Not only this, but the queen does not like to lay in these stretched cells, so you will not get brood so near the top-bars, and some of them will be changed into drone-cells.

As we have had foundation from several of the leading makers, Weed process, and of our own make also, you can't very well say that my experience with the light foundation was because of an unsatisfactory article, though I have bought some very poor foundation from one maker.

SHORTENED TOP-BAR FRAMES.

Now a word on your footnote to Dr. Miller's Straw on page 200, about shortened top-bar frames. You say that lack of finger room is the only objection to such frames. Let me give you a few more. Old hives, if slightly warped, allow frame-ends to drop down. When buying bees, sometimes the hives are a little too long (as you made them years ago), and we meet the same trouble. I asked you once if you could shake a big bulging frame of honey by grasping the top bar just inside the ends, but you did not answer. I guess you could not do it unless you thrust your fingers through the comb, under the top bar. The feature of a bee-space around the end of the top-bar is very desirable; but I will not sacrifice any of that now too short projection by which we handle our combs. The only feasible way, I think, is to cut the rabbet $\frac{5}{8}$ or $\frac{11}{16}$ wide, instead of only $\frac{7}{16}$, then nail on a cleat $\frac{1}{2}$ to $\frac{7}{8}$ thick, $1\frac{1}{2}$ to 2 inches wide, across each end of the hive, *a la* Dr. Miller, or cut out the rabbet entirely, using a cleat on the principle which I illustrated on page 789, 1901.

Then we can use the full-length 19 inch top-bar, with staple for end spacing under the projection, and secure all the advantages for rapid handling without any sacrifice, and such a cleat on any hive strengthens the only weak place in the Dovetailed hive.

The only change with our old frames will then be to drive a staple under each end of the top-bar projection. I will be one to use such hives and extracting-supers if others will also adopt them, and I believe this to be the best solution, by far, of this problem.

Meridian, Idaho.

[When wired frames are mentioned, either by Mr. Atwater or by Mr. Scholl, I assume that both refer to the horizontal plan—that is to say, the end-bars are pierced, and the wires run parallel with the top-bar, and about two inches from each other.

What Mr. Atwater says in regard to the light weights sagging, making drone foundation when secured on horizontal wires, is true to a great extent; but light-weight foundation can be used providing *perpendicular* wires are secured in the frames; and we have been thinking for some time that we ought to devise some simple and cheap plan for securing wires to the top and bottom bar. If placed two inches apart on a perpendicular line there will be very little trouble from drone comb. Years ago we used such a plan of wiring, and now recall that we had great solid cards of *worker brood clear up to the top-bar*. I am not so sure but the Dr. Miller splints may be a partial solution of the problem. This is a good field for discussion, and we should be pleased to hear from our subscribers.

I will admit that there is one other objection to the use of a short top-bar, and therefore accept your correction; but in "this neck of the woods" at least, nothing but regular standard hives are used. But this difficulty of short top-bars can be entirely overcome, even when the hives are too long. Nail a thin strip of wood flush with the top of the rabbet, in each end of the hive, of sufficient thickness so that the top-bar will reach comfortably across without letting the frame drop down. We used to do this with old hives that we bought years ago of the farmers. The increase in the bee-space back of the end-bars will cause no appreciable trouble from burr or brace combs.

But I admit that the nicest solution of the whole matter is to cut out the rabbet entirely, nailing a cleat clear across the top of the hive to close up the space cut out. I have always conceded this; but, as you remember, I contended that, in view of the many thousands of hives put out, and I might say millions, having covers with downwardly projecting cleats, it would be impracticable for a manufacturer, at least, to start this innovation, because his customers would complain that the old stuff would not fit the new. But any bee-keeper can have his hives made to order, with rabbits cut out, with long top-bars and long covers to reach over the cleats.

Shake the frames having short top-bars? Why, no. I did not know that I had failed to answer your question on this point. Just the other day I was at one of our outyards, and observed that I found it most convenient to hold the Hoffman frame by the end-bar instead of by the top-bar. By giving it a quick shake all the bees can be dislodged, and the widened projection of the Hoffman end-bar gives a splendid hold.

If an extracting carrier-box is used, frames can be stood end-bars up, and conveyed to the extracting-house, when they will be the right way up to be handled by the one who does the uncapping, thus saving the quarter twist.

But I have shaken many frames by the top-bars; and it is the most natural thing for me to grab between the end-bars, and I do not need to jab into the honey either. If the bars are $\frac{7}{8}$ in. thick there is plenty of finger room.

After all, this is a matter of getting used to a thing. Why, these fellows who have *always* used closed-end frames having no projecting ears to the top-bars are compelled to grab the frames in the manner I have described, and they wouldn't shake by the bars even if they had them.—ED.]

WAX-RENDERING.

How to Manage Large Quantities; a Bee-cave.

BY ISAAC BARBER.

I have about one ton of slumgum. Some of this is nearly as heavy as wax, and some has but little wax in it. I bought out a large apiary, and I find barrels and boxes filled with this wax refuse. Some of the chunks are quite large, smooth, and hard. I think the wax has been rendered out in barrels by the use of a steam feed-cooker. I should like to know the best way to get the wax out of this, if you will kindly inform me. I have a good steam feed-cooker and two German wax-presses, plenty of barrels, tubs, and pans for holding wax.

We have some beeswax that we tried to refine. We put water and sulphuric acid and beeswax in a barrel. The hired man turned on the steam and boiled it for quite a while. When it cooled it was about like thick meal mush. Now, what can be done with it to make it marketable?

We have a cave in a dry clay bank about ten feet deep, eight wide, twenty four long; a ventilating-tube four inches square and sixteen feet long, in the back end of it. It reaches to within two feet of the bottom of the cave, and straight out at the top; double doors to the cave. We have 115 colonies of bees in this cave. The thermometer stands at 52. Will it be safe to leave them at this temperature? There is no roaring of the bees, but they are still and quiet. I have kept the ventilator closed except a day or two, and I thought they were not quite as still near the ventilator as at the other end of the cave. I am afraid of ventilating-

tubes, as I lost quite a number of colonies that sat next to them years ago. This is a large apiary I have just bought out, the owner having died. I know he has wintered bees successfully in this cellar for years; but I don't know whether he gave them ventilation or not. He told me that something dug some holes at one end of the cellar, and that quite a number of swarms died that received direct ventilation from those holes. From the experience of this man I am satisfied that bees can be successfully wintered in this cellar; but I don't know as to the ventilation.

Rodney, Iowa.

[The method which you followed in refining your wax was not quite correct. You should first put your cakes of beeswax into a tank or kettle containing a little water, and then boil the water until the wax is pretty well melted, and then keep the wax at a temperature near the boiling-point until you are sure that all is reduced to a liquid condition; then add your dilute sulphuric acid, and be sure that you do not add too much. The wax which you had left from your attempt at refining was evidently what we call "water-soaked," as you say it was in fine particles resembling mush. You should heat this up in a tank containing no water; and in doing this be very careful that you do not burn the wax. In this way you can reduce it to a firm solid cake. If it is now clean it is ready for market; but if not you should treat it in the manner described above.

In reference to a method of rendering wax from a great quantity of slumgum, if this ton of slumgum which you say you have contains chunks very rich in wax — that is, if parts of this mass of slumgum had been partially rendered — I believe your best way would be to pick out these chunks of wax and melt them up separately. If I am right in understanding that this is the case, I would suggest that you follow the method I have just described, and then strain out the impurities. This will save running the richer portions of the slumgum all through the press. You could take these strainings and press them — an operation which would, of course, take but little time. The rest of the slumgum you would probably have to run through the press in order to get practically all the wax. I would suggest that you follow the plan given in the directions which we are now sending out with the presses. You will see that we recommend melting up the slumgum in another kettle or boiler when a large quantity is to be rendered, and then dipping this melted mass into burlap bags and pressing three of these bags at a time by the use of our cleated division-boards.

In reference to the cave in which you have placed 115 colonies of bees, I will say that, in my opinion, a temperature of 50 degrees is rather high, and I should suppose that you would need to use a ventilator. As long as the bees are quiet, however, you can be pretty sure that they will come through

the winter in good shape. If they are less quiet when the ventilator is open, I should think that some arrangement might be attached to the ventilator to keep out the wind, if there should be any, or the direct cold air.—ED. [

ALSIKE.

Some Cautions and Suggestions Concerning it.

BY J. A. CRANE.

I have read with a great deal of interest the various ideas which have been presented by different writers in regard to the alsike-clover question. While admitting the desirability of having a large acreage of this excellent honey-producer, I wish to sound a note of warning, and I speak from a farmer's point of view, having been for 21 years in the ranks, and 12 years in the bee-ranks.

Several years ago the alsike craze struck this section of the country hard. One or two farmers who had land adapted to the growth of alsike made some heavy crops of alsike hay, of a very superior quality over the common red clover, being much finer of stalk, and more profuse of leaves and heads, being eaten clean by all kinds of stock, while the stems of red clover were left. As soon as the people saw or heard about this, alsike seed was soon at a premium, being sown on all kinds and conditions of soil, the result being disappointing in a large majority of cases, resulting in condemnation of alsike in all directions except by the few who had happened to hit the proper combination.

Now about the idea of furnishing free seed for farmers to sow fields of alsike. My advice would be to go slow by the majority of bee-keepers unless you know that the soil on which it is to be sown is proper for alsike. I have grown alsike clover whose stems were over six feet long, but that was on an old onion-patch that had been heavily fertilized, and the soil was full of humus, and naturally moist and friable. If you can get a chance to have such land seeded to alsike, by all means furnish seed free if necessary.

My plan has been for a long time back, when seeding a piece of land, to mix in a little alsike, say 10 lbs. of alsike to the bushel of clover, the alsike seed being so much finer than red clover that I get many plants to the acre; and where conditions are right it makes a good addition to the hay crop, and in other spots it will, perhaps, be about like white clover; but it will be full of blossoms, and I never could find that the bees preferred the heavy growth to that growing in swampy soil. In this way we can keep the land full of clover year after year, as it seeds itself much like white clover. A good many of the farms around here have been treated in this way till now the pastures and roadsides are well sprinkled, and, together with white clover, make a fair location for bees.

I would try by all means to get as many

farmers to sow some alsike with their other seed as I could induce to do it. The bees will get a longer pull at it in this way; for when alsike is sown alone it is cut two weeks before other hay, thus losing the best part of the honey crop; for I believe that, other things being equal, the best part of the honey-flow from any source is after the middle of the season of bloom rather than before.]

Marion, N. Y.

THE CONTROL OF SWARMING.

Requeening on a Large or Small Scale; How to Do Away with the Swarming Fever.

A Reply to J. E. Crane.

BY C. W. DAYTON.

I find on page 571, in the article by Mr. J. E. Crane, the following: "Destroy all old queens of first swarms, allowing them to return." Indeed, that is brief management. If the swarm is allowed to return as soon as they please, the bees will still retain the swarming fever, and realize their disappointment, and will sulk more or less, sometimes for several days, even until the virgin queens begin to hatch, or until the issuance of the second swarm. The right way is to put the swarm in a screened cage or hive for eight to ten hours, queenless, then they will forget about the queen they came out with, and these hours of uneasiness will divest them of the swarming fever or mania, and when they return they will go to work as industriously as if they had not swarmed.

Mr. Crane also says, "There would likely be but little trouble with a few colonies; but when you try to manage a hundred colonies in one yard in this way, your patience will be sorely tried." I find the opposite of this to be the actual fact. The more swarms there are, and the more they mix up, the better the system works. One swarm separate is far more trouble than five swarms all in a bunch. I want the queens to be balled. That will show me where the queens are, so that they can be picked out. Queens in mixed clusters are very seldom balled in a vicious manner, and "soon stung." They are balled only lightly to show them they are not befriended. Then if the queens persist in staying they may be stung, after a time. This gives the apiarist time to attend to them as he likes. At the time of the issuing of the second swarm there will be plenty of young or virgin queens available. In nearly all second swarms there is *but one virgin*. If there is more than one it is because of some interruption of the regular course of procedure, such as inclement weather or the meddling with the colony by the apiarist, etc. The young queens can be obtained from the cells we destroy. Some are found just gnawing out, having been held prisoners in their cells perhaps two or three days by the bees of the swarm; yet all the time there may have been one virgin hatched out and coursing through the hive on purpose to let the bees

know that they may swarm at any moment, and have a queen.

If a single swarm comes out it may settle down in a quiet cluster with the queen in the middle of the bunch. This will depend upon whether they have their future location already picked out. If so they will remain clustered only long enough to be sure the queen is present. The queen makes her presence known by running through and through and over the outside of the cluster, leaving her scent on the bees. With more than one swarm in a cluster it causes matters to be very unsettled. Then when bees from several swarms are caged together it is all the more confusing in their swarming. The more confusion the better. It abstracts the bees from their own intentions. When first caged they will buzz and bump against the screen for awhile, but finally settle in a compact quiet cluster, and the queens will remain quiet. Then the bees can be poured out of the box on a smooth space of ground, and the queens picked up and caged in a few moments. When all the queens are secured, set the box down on the ground, open side down, and in an hour or so the bees will cluster in it again. Then put the screen on to confine them until it is time to let them go home, which should be near night. Wait until the bees find out that they have no queens, then they will want to get out and return to their own hive, thinking that their own queen did not issue with them. Open the screen only partially so that they can escape slowly. Do not throw them out in a pile on the ground. They are now dissatisfied with the strange cluster they are about to leave, and they will not go in with another cluster of strange bees unless it is by the confusion of a mass of bees together. They will not cluster "on other hives."

I began this season with over 300 full colonies in one apiary. On three sides are hills or mountains, but the ground on which the hives stand slopes upward on three sides, amphitheater-like. When the swarms issue they drift toward the center and cluster upon some small-sized trees all together, usually. If I am nailing frames or putting in foundation I do not stop my work until I see the swarms settled into a cluster, sometimes 50 pounds or more of bees. Then the cage is enlarged sufficiently to hold the whole bunch. I lay the screen on the ground while I hold the box or open cage in my hands. Give the body of the tree a good sharp kick, which knocks the bees off on the ground. Then set the box, with open side down, right in the middle of the pile of bees, and in an hour the bees will be on the inside, nicely clustered. Then turn the box right side up so quickly that the clustered bees do not have time to fall out, and clap the screen on. In an hour or two more they will be quietly clustered again, when they are ready to pour out and secure the queens. All this takes but a few moments. While the second swarms are absent from their hives, and the combs nearly bare of

bees, I go through the brood-combs to destroy the cells and secure young queens for requeening. Five days later I introduce young laying queens taken from fertilizing nuclei, and the colonies will not swarm any more, even if their hive is greatly contracted. Ripe queen-cells can be put in instead of laying queens if desired.

They do not "repeat the circus as long as a queen can be had to cheer them on day after day," as Mr. Crane states on page 571. That kind of circus is found in the systems intended to prevent swarms, but not in the above-described system. Mr. Cruickshank is working toward this system, but has not reached the most advantageous parts of the system. The bees should be sent back home with a disposition to resume work. Instead of swarming, drizzling along day after day for several weeks, it can all be completed within two or three days, and that when every colony swarms. The highest results demand this management. It is system. These other things there is so much about in the bee-papers are not systematic—guesswork, disappointment. Every colony is different from another. In the system above, every colony is like the next one throughout the apiary. In management, in numerical strength, in ultimate results, the apiarist can say, "I know that swarms (bees) can be controlled to the advantage of the apiarist."

Chatsworth, Cal.

HOW WE KNOW THAT BEES HEAR.

Some Facts that Seem to Indicate that they do.

BY WM. M. WHITNEY.

I hope I've not been the cause of an unpleasant mix-up between Prof. Bigelow and Dr. Miller in my query some time ago regarding certain sounds seeming to arrest the attention of bees. On page 1291, Dr. Miller, in reply to my query, makes the statement quoted by Prof. Bigelow on page 233, which the professor by implication seems to question.

Dr. Miller, in his reply to me, seems to misapprehend the import of my question, or perhaps I did not make my meaning clear. I do not pretend to be much of an entomologist, nor even much of a bee-keeper, but I do like to find out things. I have never doubted that bees hear sounds; but the query with me is, do not certain sounds cause them to halt when other sounds would not, as in the case cited by me? This case was so marked that there could be no mistake, as it was tried over and over again.

Prof. Bigelow's questions to Dr. Miller, at least by inference, it seems to me, cast a shadow of doubt as to bees being able to hear at all. I had always supposed that all animal life possessing the power of producing audible sounds also possesses the faculty of hearing; or, in other words, that each species capable of uttering sounds had a language of its own which could be heard and readily

understood by every other member of such species. The common cricket, I am sure, can hear. When a boy, living in the log home in New York, it was common in the evening to see the crickets come from under the hearthstones, seemingly enjoying the opportunity of giving us a free concert. It was an interesting and amusing exhibition to me, the appearance of these black shiny little choristers, arranging themselves to give us a serenade. I often amused myself trying to imitate their sounds, which seldom failed to arrest their attention; therefore I think they can hear, and it is quite evident to me that the honey-bee can also. Whoever doubts it, let him attempt to lift a frame

of comb from a populous colony where it is necessary to push aside the bees in order to get hold of the ends of the top-bar, and by carelessness or haste he pinches a bee so that it squeaks, and observe how quickly other bees hasten to the rescue. Don't take my word for it, but try it yourself. If you are not presented with arguments sharp enough, that bees hear sound, please let me know. Why the quack, quack of the young queen as she passes over the comb, and the response of her rival if they have not the sense of hearing? I have witnessed this same phenomenon while holding for observation a frame of comb containing some bees, queen, and queen-cells a few days after a prime swarm had emerged. It was extremely interesting to witness the uneasy, excited actions of the queen as she passed along over the comb, putting her head into a cell here and there, and uttering the peculiar sound, something like a very much suppressed *konk* of the wild goose; then the response of the imprisoned queen in the cell, and the clustering of the bees to prevent results which would prove disastrous to carrying out their plans. The next day a swarm issued as I expected. Who among practical bee-keepers thinks that bees do not hear? Will brother Bigelow tell us what he thinks about the matter?

Lake Geneva,
Wis.

[Mr. Whitney is entirely correct in stating that when one pinches a bee so that it "squeals" its companions will rush to the



DR. LYON'S CAPTURE.—SEE NEXT PAGE.

rescue. Indeed, a cry of pain from an injured bee is quite liable to be followed by a sting or two from other bees.—ED.]

A PHOTOGRAPH OF A LIVE BEE SIPPING NECTAR FROM A PETUNIA-BLOSSOM.

BY D. E. LYON.

The accompanying illustrations are of a Caucasian bee sipping nectar from a petunia blossom, and of a swarm of bees. The bee on the blossom was alive when I took the picture, and not a dead bee posed for the



A CAUCASIAN CAUGHT IN THE VERY ACT.

occasion. The swarm was one that came from a neighbor's apiary, and clustered on a raspberry-bush back of the house. I cut a limb off the bush and hung it over the clothesline to photograph the bees.

Rye, N. Y., May 27.

[It is very difficult to get a live bee on a blossom and catch it with a camera. This is the second time Dr. Lyon has succeeded. He is to be congratulated.—ED.]

A GOOD REPORT FROM A NORTHERN-MICHIGAN BEE-KEEPER.

The Importance of Putting the Very Best Honey in the Very Neatest Package.

BY IRA D. BARTLETT.

I began my bee-keeping career in the spring of 1895, at which time I was eighteen years of age, with one colony purchased of a farmer near me. Later on he lost his entire apiary by foul brood. I increased to two colonies the first season, wintering them successfully, and increased to seven the next year. We got no white honey this year, but the buckwheat yield of honey was something unusual.

All of my seven colonies were well supplied for winter, and out of one super on one hive I extracted during the fall flow 175 lbs. I have never since had any thing like it, and during the last three years we have gotten very little if any buckwheat honey.

I kept increasing until I had upward of 100 colonies, buying out several small apiaries, but never selling any bees. I lost very few colonies during the winter, but in the spring I usually lost some by robbing or dwindling through various causes; and as I always make it a point to keep all good strong colonies during the honey flow I would unite my smallest swarms with some rather weak colony, and get them ready for the surplus boxes.

It would be almost impossible to tell here how I manage; but I can simply say that I learn to know my bees and try to give them just what they require. Of course, I have to run over the yard often, but it pays.

I have averaged about 100 lbs. to the colony one year with another. My best year was 1902, when I averaged through the yard 160 lbs. I sell my honey to the merchant almost entirely, putting up the extracted in glass, and my comb I pack in the no-drip shipping-case, 24 sections to the case.

I winter by packing my bees in a special



AN APIARY THAT AVERAGES 100 LBS. OF HONEY PER COLONY.



FIG. 1.—A BEE-KEEPER'S TRANSFERRING PARTY AT LUNCH.

winter hive to hold four colonies, packing all around with kiln-dried planer-shavings. I leave them in this packing until nearly swarming season, when they are placed on the summer stands.

I am looking after some 215 colonies this spring, but I expect to increase to 500 right away. The photograph shows my home yard of about 160 colonies. I find that, with a little help, I can manage a greater number.

I might write a long article on how I sell my honey, but will not take up space here; but let me say, don't be careless and put your honey on the market unless it is the best and the package the neatest, and live up to every agreement you make with your purchaser.

East Jordan, Mich.

seats, and the gentlemen standing in the background.

You will notice in Fig. 2 a box hive turned upside down. The super on the old box was a soap box, and you can see the printing on the box, as it is inverted. The box into which we are drumming the bees is made exactly to fit flush on the inside of the bottom of the hive. Norman Mattson is to the right, drumming with two sticks on the one side, and the writer is on the left, drumming with two sticks on the other side, with one of the guests assisting, holding the drumming box down. My plan is to have each one of the sticks hit the side of the box with a slight jar at different times — not simultaneously. I have gotten better results from this than from any other way.

I have forgotten exactly, but think we transferred, in all, fifteen colonies that day. We had some sixty colonies in all to transfer. The other picture shows the beautiful apple-blossoms and the tree under which our operating-table was placed; a pile of drone comb as we threw it in a heap, and a barrelful of combs in which there was no honey nor brood, to be melted, and some of the cans into which we could put the chunk honey, and about a dozen of the hives in the apiary on the other side of the wire fence. I am sorry this picture did not take in the operating tab'e and some things on the other side of it. The last picture shows one corner of the apiary, which we have enclosed on two sides with a board fence.

Philadelphia, Pa.

A TRANSFERRING EXCURSION.

Transferring Sixty Colonies from Boxes to Modern Hives.

BY WM. A. SEISER.

I enclose four pictures of a transferring excursion that we made to Salem on the 1st of May. Fig. 1 shows the party under one of the apple-trees, with the lunch spread out on boxes, the ladies sitting on the grass and

**IF I WERE TO START ANEW, WHAT
STYLE OF FRAMES, SUPERS, AND AP-
PLIANCES WOULD I ADOPT?**

Would Adopt 8-frame Lock-cornered Hive, Sta-
ple-spaced Frames, 4x5 Plain Sections.

BY J. E. CRANE.

This reminds me of the question that often comes to us all: If I were to begin life over, how would I live? If we could only begin with all the experience of the years that are past, how much greater might be our success! It is just forty years this very winter since I bought my first hive of bees. How many different styles of hives, frames, supers, boxes, etc., I have used I can not tell. Could I have begun with my present experience it would have made a difference of many thousands of dollars, I am sure. Were I to begin again I would doubtless use a single-board hive of size to hold eight Langstroth frames, with improved bottom-boards, for comb honey; or for extracting, ten frames. I would have them lock-cornered too. Such have always had a very substantial look; but within a few days I have come to have a respect for lock corners I never had before. It was on this wise:

Wishing to use the sides of an old tea-chest I tried—yes, and after a time succeeded in knocking it to pieces. It was of soft lumber, $\frac{3}{8}$ thick, and nailed with small (I

think) one-inch nails; had been transported half around the earth with merchandise, and since its arrival in the Occident had been used for various purposes, and yet every corner was perfect, and came apart with more difficulty than an ordinary box hive $\frac{1}{8}$ thick nailed with heavy nails.

As we have a good deal of propolis in this section I think I should prefer a plain Langstroth frame. A staple below the ends of the top-bar to keep the frame from slipping endwise, and staples both at top and half way down at sides, to keep them properly spaced would be preferred. I don't think I would care to have the sharp edge of sheet iron or tin for ends of frames to rest on, as, in a yard I bought last spring, where these are used, I find with many the space back of the metal so filled with propolis as to make them a nuisance. I forgot to say that I would have all frames for brood-chamber wired, or a thin strip of wood for an upright in the center of the frame from the top bar to bottom. These strips are more easily put in, and just as good, so far as I can see, to prevent sagging and do little if any harm. Top-bars should be at least $\frac{1}{2}$ inch thick.

For a super I would use a shallow box five inches deep, with corners locked the same as a brood-chamber. It should be $20\frac{1}{2}$ inches long, and 12 inches wide inside, and hold 30 plain sections 4×5 .

The bottom should be covered with slats the proper distance apart for the sections to



FIG. 2.—BOX-HIVE TURNED UPSIDE DOWN PREPARATORY TO DRUMMING THE BEES OUT.



FIG. 3.—THE TRANSFERRING-TABLE UNDER THE APPLE-TREE.

rest on. One side of the super should have, near the top and bottom, double-pointed tacks driven in so as to engage the edges of the sections, keeping them just $\frac{1}{16}$ inch from sides of super; also one side of the following board should have at top and bottom double-pointed tacks or a thin strip of wood $\frac{1}{16}$ thick to keep the section edges just that distance from the board. I have used wedges for pressing the following-board against the sections, and also forcing the sections and separators closely together. There is little fault to find with wedges; but if I were to begin anew I think I should prefer springs if they were not too expensive.

From the size of the super you see I would use a section 4×5 outside, and $1\frac{1}{8}$ thick, and plain. There are several reasons for using a clamp or super and section of these sizes. The super would just fit the top of the brood-chamber, and fit the sections. The sections could go in either lengthwise or crosswise, if preferred.

I should prefer the $4 \times 5 \times 1\frac{1}{8}$ plain, as, with a carton, it would average an exact pound; is very popular in some markets; cuts up better on the table than a thicker one, and will, I have reason to believe, be filled quicker than a thicker one. I have 200 supers holding 28 sections $4\frac{1}{4} \times 5 \times 1\frac{1}{4}$ plain, making a very thin comb, as sections go; and I am unable to see but bees fill such a clamp as soon as one holding but 24 sections of the same capacity, but $\frac{1}{4}$ inch thicker.

For some reason bees will fill a thin section, and seal it quicker, than a thick one of the same weight. A tall section also gives room for a larger number on top of the hive, which is often an advantage.

I would use a slatted separator with projections on the sides to engage the edges of the sections, and so keep the sections just a bee-space from the separator, thus giving the bees a chance to pass along the sides of the combs and edges of sections from one of the supers to the other. So well has this pleased me that I have, within a few years, thrown aside all my old separators, and made over all my old supers, and made new separators for some 1200 supers, so I could use a four-beeway section on all, without regard to expense, and have no reason to regret it.

Over the hive comes a roof, and I now think I should have it covered with tin, or sheet iron, painted on both sides, and projecting a little beyond the rest of the hive. I mean that the edges of the roof should project, not the edges of tin alone.

I shall include in my fixtures an escape-board $\frac{1}{2}$ inch thick. On the upper side it should be around the edges $\frac{1}{2}$ inch thicker to make a bee-space under the super. It should be large enough to cover the top of the brood-chamber, and have a Porter bee-escape in the center of it. Enough of them should be made so as to be able to take off supers rapidly, and free them from bees.

I would also have a good supply of honey-

boards, so made of thin lumber as to compel the bees to go up into the super from the sides of the brood-box, and thus prevent their carrying up dirty wax from below when finishing sections above old combs. Among appliances I would include a good honey-extractor, as there is always more or less honey that should be extracted as unfinished sections, etc.

I have always made my own extractors; but were I beginning anew I would buy a first-class machine. A four-comb Cowan will do the work very satisfactorily.

Another appliance I would get as soon as I had a few hives of bees; and that is, a good wax-extractor. I made one of these a few years ago, and am surprised at the amount of wax they save; but after using it I was chagrined to find out how many hundred pounds of wax I had lost for lack of a good press. I find my old combs average $\frac{1}{2}$ lb. of wax for each Langstroth frame emptied.

I have never used drone traps and that sort of thing, believing it much easier and more economical to reduce the drone comb in a hive, or cut off the heads of drones before they hatch than to rear great broods of them and then catch and kill them afterward.

Whether few or many colonies are kept, I should want some conveniences for rearing queens so as to rear them from my best colonies, both for the pleasure and profit.

There is another matter I should speak of

before closing; and that is, that whether hives, frames, supers, sections, etc., are made at home with a Barnes saw or at a near-by factory or by a manufacturer of bee-supplies, I would have them made as accurately as possible, with good machinery and by equally good mechanics. Few things are more provoking and irritating than ill-fitting hive fixtures. If you set a brood-chamber on a smooth level table or floor, and have it stand on one end and side and have the other end and side rise from the floor till one corner rises from $\frac{1}{8}$ to $\frac{1}{4}$ inch, it makes it unfit for use.

Unless the supers are properly made they too will be "on the wind," and putting the two together leaves a space large enough for bees to fill with propolis, or robbers to enter in some unguarded moment, and, before you are aware, ruin, perhaps, your best stock.

I would not stand a variation of more than $\frac{1}{32}$ of an inch from the right size, and that would be just $\frac{1}{2}$ too much.

I am not sure whether I would order from supply-dealers or not, as I have sometimes received samples I would not use if they were given me, but rather order a single sample, and, if it pleased me, and could be duplicated with sufficient accuracy, order of them; otherwise get what I wanted near home, where I could oversee the work, and have it done right.

Middlebury, Vt.



FIG. 4.—THE TRANSFERRED BEE-YARD.



FIG. 1.—THE CORRECT WAY OF SETTING A SUPER OR UPPER STORY ON A COVER TO AVOID BEE-KILLING.

HOW TO HANDLE HIVES AND FRAMES WITHOUT KILLING BEES.

Why the Bee-killing Practice Should be Avoided; Self-spacing vs. Unspaced Frames.

BY E. R. ROOT.

In our last issue our senior editor expressed pity and regret that so many bees are maimed and killed in handling them. I myself have seen bee-keepers show an utter disregard for the lives of their little pets. One man told me once that when it was cheaper for him to kill a few bees—that is, when he could make more money by sacrificing the lives of a few of his live stock—he did not hesitate to mash and maim; that he killed only a few hundred in a year, and he considered his time worth many times the lives of those bees. I suspect that there may be some truth in this if we consider *only* dollars and cents. But there is an ethical and humanitarian side to this question; and I am not so sure but that, if we plan rightly, getting into the correct habit of working, we can avoid killing any bees and yet not waste any time.

A good deal depends on the kind of hives, frames, and other implements used. But the kind of supplies does not make so much difference as one would suppose. One who is not familiar with handling a closed-end frame will kill more bees than one who is. It is probably true that one who is not accustomed to loose unspaced frames will maim not a few of the inmates of the hive by carelessly drawing these same frames out of the hive because they feel different and handle differently.

As we are now right in the midst of bee-handling, a few suggestions to beginners may not be amiss to even a few of the veterans. The novice, at least, should begin to form correct habits of working. He should always have a tender heart, for, as I shall try to show, a regard for the lives of our little servants will save many a sting.

HOW TO OPEN A HIVE AND TAKE OFF SUPERS WITHOUT KILLING AND MASHING BEES.

The accompanying illustrations give some hints as to how this may be done. With a screwdriver or hive-tool pry the cover up gently. When a crack has been made about $\frac{1}{8}$ and not more than $\frac{1}{4}$ inch wide, blow in a few puffs of smoke. If the bees are gentle, only one whiff will be necessary. If they are cross, use just enough to drive away the few bees that will be aroused by the breaking loose of the propolis between the cover and the hive. Lay this on the ground, top side down. We will suppose in this case we wish to lift off the extracting-super or upper story for the purpose of examining the brood-nest. Remove this in the same way the cover was lifted off. If the frames are closed-end (or part closed-end like the Hoffman) the super may be stood up on end; or it may be set down on the cover catercornered; but before the super actually comes in contact with the cover, give it a slight side twist. This will serve to brush off any bees that may be between the edges that come in contact. I said, set the super down on the cover catercornered. The purpose of this is to reduce the edges of contact to the smallest point possible. Let one corner strike the cover cleat with a bearing surface of not more than $1\frac{1}{2}$ inches. The other end

should rest on the other cleat so that the bottom edge of the super and upper edge of the cover cleat cross in the form of a letter X. The actual point of contact will then be only at the intersection of the X. This leaves the whole under side of the super and pretty nearly all the edges at both ends and sides with a clear bee-space, for the cleats project $\frac{1}{8}$ inch beyond the under surface of the cover now upside down; and even if a part of the super and top of the cover were black with bees, no harm will be done. Over and over again I have seen bee-keepers set their supers flat on the ground, often uneven. The result is a lot of killed and mangled bees. This is made the worse if there is no bee-space on the under side of the super or hive. As most modern hives have the bee-space on the top and not on the bottom it follows that the practice kills many bees.

Now we will proceed to open the brood-nest. A puff or two of smoke over the top of the frames will drive down any "insurgents" that may be disposed to offer attack. As the hive is one of the closed-end type it will kill bees if any thing will, so I take one of this sort.

We will select the frame we desire to remove, and with the screwdriver gently break loose the propolis connections of the frames on either side. We will now pull aside the frames *en masse* next to us, and push the other set *en masse* away from us. With the space thus made on each side of the

frame, we lift it out and examine the character of the brood; and if we find eggs we conclude the queen is present; but if no eggs are found on either side of the frame we pick out the set of frames next to us *en masse*. As we have not broken the propolis connections they will all hang together in one solid block, as shown in the illustration Fig. 2. We examine the two brood surfaces and set it back in the hive. If we are not entirely satisfied then as to what the queen is doing, we look over the two exposed surfaces of the other set of frames. Usually one such examination is sufficient to give us all the information we desire. As a rule, one frame picked from the center of the brood-nest will tell me all that I wish to know as to what the queen is doing, the amount of honey gathered, etc.

The operator, you will note by the above photos, puts the single frame removed on the ground, leaning it against one leg. In doing this he is careful to see that he kills no bees. As the other nine frames—four in one bunch and five in the other—were handled without separating them, no bees were mashed, because no frames were spread and put back together again.

The act of lifting up the two sets of frames will give a practical man an idea of the amount of honey there is in them; and if he now holds them up to the light, looking between the frames, first at the top side and at the bottom, he can give a pretty fair estimate as to the amount of brood, and

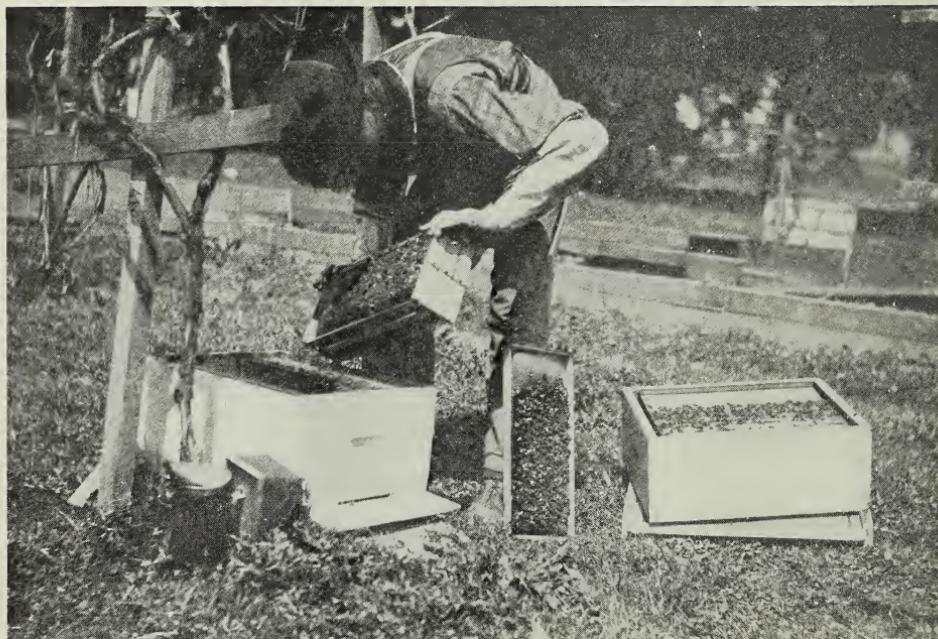


FIG. 2.—HOW TO HANDLE CLOSED-END FRAMES WITHOUT KILLING BEES.

honey too, in the whole four or five frames as the case may be, especially if they be less than the Langstroth depth.

Unless one desires to find the queen and clip her or destroy her and introduce another, there will be no need for one at any time to look for the queen, much less pull all the frames apart.* The mere presence of eggs seen on one of the brood surfaces examined, laid in regular order, is sufficient guarantee of her presence; and a practiced eye will soon tell whether she is doing her duty as a good mother ought to do.

I have heard this hue and cry time and again about how closed-end frames will kill bees. If one is to examine every bit of comb surface, I am free to admit that he will increase his chance of bee-killing. But why waste valuable time in hunting the queen or going over every inch of brood surface when the examination of frames in the manner indicated will suffice?

As the particular style of closed-end frame shown in the illustration is pivoted in the center there is very little chance for killing bees when putting them back into place. Even if the end-bars are completely smothered with them, they can be set down, the action itself brushing them out of the way, when not a bee need be killed. We will suppose that we have put back both sets of frames *en masse*. If the combs are not bulged apart, and there are not too many bees, we can space them just far enough apart—that is, the two sets of them—to leave just barely room enough to slide in the frame we first took out, and which we have leaned against ourselves. This will brush all the bees off the end-bars, and not kill a bee. If the combs are slightly bulged, space the two sets of frames apart as far as they will go. Pick up the smoker, and with one or two whiffs at each end of the hive drive the bees away from the end-bars. Do the same with the frame that is still out and is yet to be inserted. Quickly put it in place, and while doing so blow smoke down near the end-bars; and if you then hear bones crack it will be your fault unless time is more important than a few bees.

I dislike smashing bees between end-bars, for two reasons; first, from a humane point of view; and, second, because the little carcasses of the bees, even when mashed down flat, leave a space between the end-bars in which the bees will be sure to chink propolis. Next time the frame, by reason of the chinked-in propolis, will be much harder to remove.

Hoffman frames may be handled in precisely the same way as the closed ends shown here in the illustration. When one uses the old unspaced Langstroth he will have to work on a little different plan; and even then he will be liable to kill bees under the

projections of the top-bar if wooden rabbets are used, unless he blows smoke along the rabbet, or brushes away the bees that may be in the way. The main thing to observe in handling unspaced frames is to space such frames carefully; then when one desires to remove one frame he squeezes those on either side together slightly until room is secured. But with such frames it is impracticable to handle frames *en masse* as shown in the illustrations. This *en masse* method of handling big chunks of the brood nest when fixed or spaced frames are used saves the lives of a good many bees. An unspaced frame must be fingered into place one at a time, and not four or five at a time as may be done with the self-spacers.



CHAPTER VI.

HOW TO SAVE UNNECESSARY LIFTING IN TAKING OFF FILLED SUPERS OF HONEY.

But favorable weather did not come and continue; for on the very next day in the afternoon another rainstorm commenced, and bad weather continued the most of the time during the next eight days, at the end of which the clover bloom is nearly past. We now have a few days of fine bee weather, still and clear, with hot days and nights, which the bees improve as best they can on the few nectar giving flowers which are still in bloom. The first blossom-buds on the basswood-trees commenced to open on the sixth day of July, and I hoped that the good weather would continue right along; but with the afternoon of the seventh a two-days' rain commenced, which kept the bees in the hive nearly all the time. It is now the tenth day of July, and 15 days since my last visit to the out-apriary. As there is a prospect of a fine day I start to make my sixth visit to that enchanting place. Before going, however, I catch and cage three just-laying queens, from as many nuclei in the home yard, that I may be prepared to give them to any of the nine colonies I made at the last visit, which may, by any means, have failed to get a laying queen from the cells then given, taking them, together with a load of supers, with me. As the basswood is now nearing full bloom I am hoping for better weather, the same as the farmers are, who, all along the road, are opening out their hay, which "got caught" out in the rain. Arriving I find the bees rushing out of and into the hives, almost like mad in their wild scramble for the basswood

* If one is not looking for disease it is a waste of time when running for honey to pull apart all the frames except to clip or remove the queen, and even then an expert will often locate her on the first two or three frames. The course of her egg-laying will show where she ought to be. Frames should be handled as little as possible, and hives should be handled more.

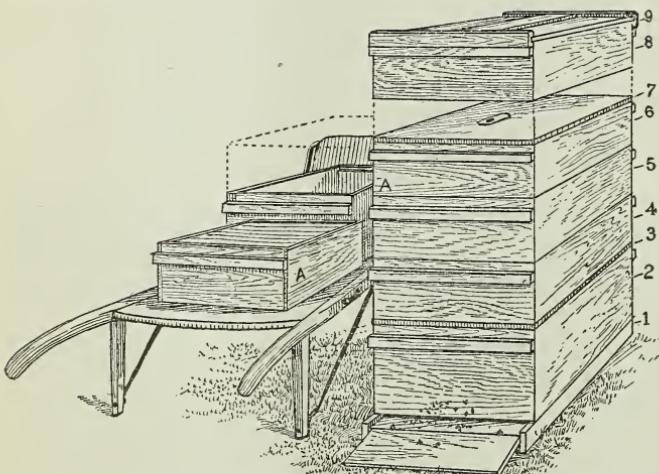
nectar, which, to me, seems so thin that it is hardly worth the gathering, owing to the bloom having been kept wet continually for the past sixty hours. While the "scramble" for this thin basswood nectar is just as great as was that for clover nectar at my last visit, yet the number of bees going into and out of the entrances to the hives has lessened somewhat, owing to the death by old age of quite a number of the bees which were on the stage of action at the time the colonies were "swarmed," while, as yet, none of the emerging bees are quite old enough to become field workers.

The first work is to look after these thirteen colonies, so that, should there be any supers ready to come off, they can be put on escape-boards the first thing, this giving the bees time to leave the sections so these filled supers can be carried home with me. I find that each one of the thirteen has one super fully completed, ready to take off; and several of them have a second super nearly so; but as I wish to take off no sections not fully sealed over, at this time in the white-honey harvest, these nearly filled supers are allowed to remain on the hive. The taking-off at this time is done thus:

fact, with as little fatigue as is possible, and very much less than will occur when supers, hives, etc., are handled from the ground. The supers being now all off the hive and on the wheelbarrow, they are rearranged in putting back as follows:

The one that was at the top, the same being the one which was put on at the last visit, if the bees have worked in it at all, as they have in nearly all of them, is set back directly on the brood-chamber, and on top of this is put the one which is nearly completed, and on top of the two I place the empty super, or super of empty sections, just brought on the wheelbarrow. The board having the bee-escape in it is now put on, and on this the completed super is set. Having things arranged thus, and working in this way, no useless motions are made or lifting done that counts for naught. The cover is now put on, and another escape-board and super of empty sections gotten, when I go to the next hive, treating that in the same way if it is in the same condition. If I find that any have done less work, then the nearest completed of the two supers, not as yet fully finished, is set on the brood-chamber, the one little worked in top of

that, and the empty one from the wheelbarrow on top of this, with the escape-board and completed super above the three, as before. The thing sought after is to give room in such a manner that we shall not have a lot of unfinished sections should the season prove poor from now on, and at the same time provide plenty of room for the largest yield from basswood that is likely to occur in our locality; or, in the terms of ancient parlance, have the "pot" right side up, should there be a great "downpour of porridge." The old saying is, that "a burnt child dreads the fire;" and having been severely burned several times during the past by putting an empty super under a partly filled one, just at this stage in the basswood bloom, which resulted, through a poor season afterward, in my having all the sections in both supers worked in, yet none completed in either, I am, perhaps, over-cautious now on this point. However, I think it better to use great caution at all times about putting an empty super under a partially full one, and especially so after having found that by putting the empty one on top better results can usually be obtained. I next look after the three colonies made by "shook" swarming at the fifth visit, exchanging supers and adding the third, where needed,



DOOLITTLE'S SCHEME OF USING A WHEELBARROW TO SAVE HEAVY LIFTING.

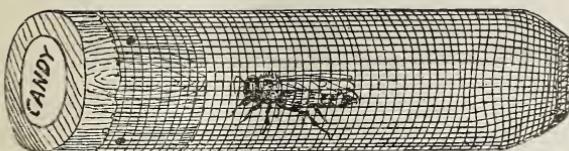
I put on the wheelbarrow (every apiary should have a wheelbarrow ready for use at a moment's notice) an empty hive, and beside it I put an escape-board, and on this escape-board a super of sections filled with foundation. The wheelbarrow is now brought up close to one of these colonies that has a super ready to come off, when the supers which are not ready are set on top of the super on the wheelbarrow, and the completed super set on the empty hive. By using the wheelbarrow, and working in this way, there is little if any bending of the back when lifting the filled and nearly filled supers, so the work is done quite easily — in

ting an empty super under a partly filled one, just at this stage in the basswood bloom, which resulted, through a poor season afterward, in my having all the sections in both supers worked in, yet none completed in either, I am, perhaps, over-cautious now on this point. However, I think it better to use great caution at all times about putting an empty super under a partially full one, and especially so after having found that by putting the empty one on top better results can usually be obtained. I next look after the three colonies made by "shook" swarming at the fifth visit, exchanging supers and adding the third, where needed,

the same as was given when telling how the thirteen were treated at that time. These have the supers containing the bait sections nearly completed, and I am tempted to take them off, but finally conclude to leave them, which proved the best thing to do, the way the season turned.

DOOLITTLE'S CANDY METHOD OF INTRODUCING.

I now look after the nine colonies made at the last visit, and an examination shows that all have laying queens but one, so I have two of the three brought, to carry back



DOOLITTLE'S HOME-MADE INTRODUCING-CAGE.

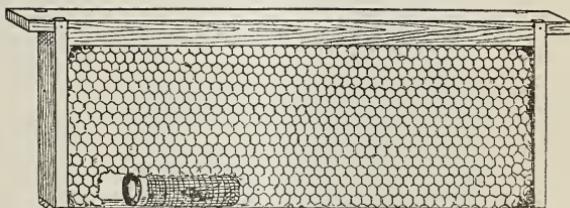
home. To the one having lost its queen a frame of young brood is given, taken from one of the others, and one of the three queens I have in cages is given to it. The removable stopper in this cage is one which I call a "candy cord," which is made by boring a five-sixteenths hole through a piece of an old broom-handle one inch long, or some other piece of wood that will fit into a round wire-cloth queen-cage, the cage being made by rolling a piece of wire cloth, fourteen or sixteen mesh to the inch, around said broom-handle or the finger, and "locking" the edges so it will retain the size wanted. This "cork," made from the broom handle, has the hole filled with "queen-cage candy," made by stirring and kneading powdered sugar and honey together till a stiff dough is formed, as is described in all of our late literature on bee-keeping. This inch in length of hole is filled with the queen candy, so the bees can liberate the queen at a time when she will be likely to be accepted by the bees, and at the same time not require my coming to

the out-apiary to look after the matter, as would be necessary by other ways of introduction. As a rule it will take the bees about 24 hours to eat the candy out of an inch in length of the five-sixteenths-inch hole, which is about the right length of time in this case to warrant safe introduction.

Having the queen all ready for the hive, a center frame is removed, and, after shaking the bees off, the cage is crowded between the bottom of the comb and the bottom-bar to the frame, seeing that there is nothing in the way of the bees having free access to the candy end of the cage, when the frame as thus prepared is set back in the hive and the hive closed.

Owing to the length of time between visits, the above, and the giving of queen-cells, is about the only way that queens can be successfully supplied to queenless colonies at out-apiaries. If I think any of these new colonies, or those having upper stories

of brood, will be apt to need more room than they have, I now put on at the top a hive containing wired frames filled with foundation, so that they can draw them out suitable for more reserve combs, and fill them with honey should an extra good yield follow. In this way all are prepared for what-

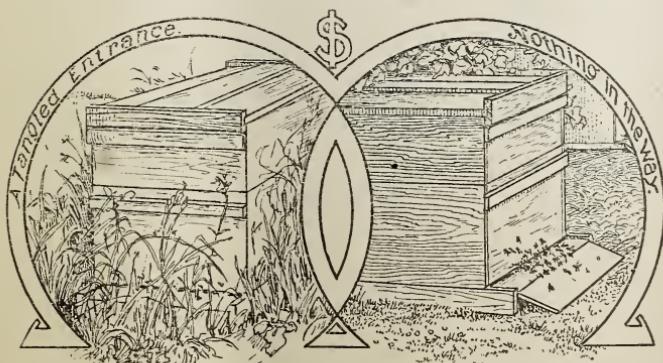


MANNER OF PLACING CAGE ON THE COMB.

ever may come, be the same wet or dry, cold or hot, a rich or a poor season, without feeling that I must go to the out-apiary with any change of weather that may occur.

WHAT IT COSTS THE BEE KEEPER TO LET GRASS AND WEEDS TANGLE UP THE ENTRANCE.

I next look after the "dooryards" in front of all the colonies, making sure that none will be bothered in their flight by grass or weeds, as well as to look after any little odds and ends that may need my attention before leaving. This keeping of grass and weeds down in front of the hives is quite an item here in New York, as they spring up almost by magic in a wet season like this one. From some experiments I have



made, by allowing the grass to "block" some hives for this purpose I find that, where badly tangled, the colonies in such hives will not store more than two-thirds as much honey during a good basswood yield as will those having a free flightway.

I am led to speak of this for the reason that I have found in many apiaries which I have visited during basswood bloom the bees crawling or hopping from spear to spear of grass or weeds, for from one to three feet from their entrance, before they could arrive at home with their loads. Heavy-loaded bees "tangle" much worse than those with no loads, and it seems cruel to make the little fellows struggle so to reach home, to say nothing about the apiarist's loss in honey. The looking after all of these things is often what makes the difference between success and a partial or entire failure. By this time the bees in the supers above the escape-boards will have nearly all run out of them, and the few remaining will go out during my wheeling them to the wagon, loading and getting started. The load and the mud make slow driving the order this time, and it is about 1:30 P.M. when I arrive at home.

In the above the reader has an account of what was done at the sixth visit. To be sure, there is considerable sermonizing mixed in, but this seems necessary for a full understanding of the matter.

more colonies. At first, when they had queen-cells started, and eggs or larvæ in, and later when every indication pointed in that direction, but had not made the move yet, and in every instance, it was an utter failure—always swarming out from below as soon as the young queen was ready, and sometimes attempting it from above. Three or four cases, before the young queen swarmed, I removed the old queen with a frame of brood and honey and adhering bees, and put them on a new stand. After the usual time the young queen took up sway in the old hive; but the whole operation was as bad a setback as if the swarm had gone off, which they did in many cases, as I could not be there to watch them. Knowing this would be the case, I was the more eager to try some plan that would give me control. I think I followed to the letter the drawings, specifications, and manipulations given in the Nov. 15th GLEANINGS, except the few cases indicated above. In this last issue the chute differs from the other one in that it has a wire screen which brings the exit at the top of the chute while the other is at the zinc below. The last one operates in his queen-rearing hive described in an issue between these two.

Now, I can not see where I failed, and yet I failed utterly. Toward the last of July, and through August and into September, I have tarweed honey, and I can not help it. Upon this I am planning to make my increase.

A. J. BURNS.

Lusardi, Cal., May 10.

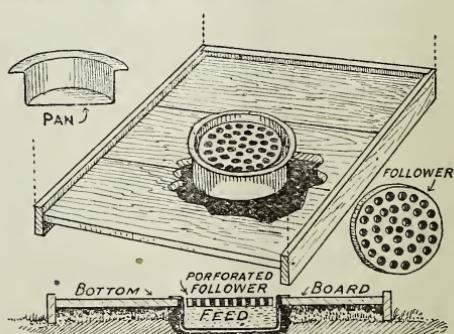
FEEDING COLONIES BY SETTING THE HIVES ON BOTTOM BOARDS WHI'CH CON- TAIN PANS OF SYRUP.

In nearly every bee-journal I take up the question is asked, "What is the best way to feed bees?" Now, there are many ways. My way I have never seen in print; and as it may help others I send my directions. I can feed an eight-quart pan of syrup in one

THE J. E. CHAMBERS NON-SWARMING PLAN; WHY WAS IT NOT A SUCCESS?

I have read with the deepest interest Mr. J. E. Chambers' article in the May 1st issue. When his non-swarming plan with the attachments came out in the Nov. 15th GLEANINGS I was so impressed with it, and it looked so feasible, that I made up 50 sets of the attachments and had them ready this spring when the swarming season came on.

Last spring I found myself with only 19 colonies out of some 70, because of the previous dry year, and I bent all my efforts to increase, with the result that I had 120 colonies by fall—about two-thirds of them made with a nucleus box between the middle of June and the last of October. This year I wanted all the honey I could get; and, to get the most, I wanted to prevent all the swarming I could; and because it looked so feasible and Mr. C.'s assertion of its almost certainty to prevent swarming, I prepared myself as above. But when I put it in practice I was most woefully disappointed. I think I must have operated upon thirty or perhaps



night, and no robber be any the wiser. In the first place, my bottom-boards are independent of or separate from the hives. I have a few bottom-boards made expressly for feeders. I go to the tin-shop and have the tinsmith make a few eight-quart pans

with perpendicular sides, with a flanged rim. Then I take a compass and strike a circle $\frac{1}{2}$ inch smaller than the inside of the pan, on a board, saw it out and bore it full of holes with a $\frac{1}{4}$ -inch bit. This is a follower-board.

Next I compass outside of the pan, then take the bottom-board and strike a circle a little larger than the outside of the pan; then go to the colonies I wish to feed, dig a hole in the ground beside the hive that will admit the pan; place my bottom-board over this, and drop in the pan.

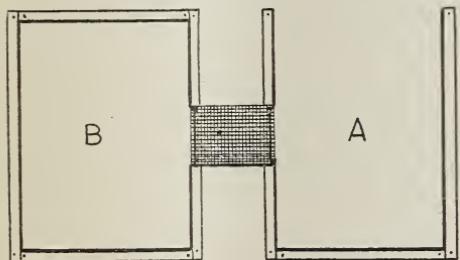
After the bees are done flying for the day I bring out my syrup a little warm, fill my pan, lay on the perforated follower-board, and place the colony of bees over the pan of syrup. In the morning very early I set them back on the stand and remove the feeder. If you wish you can feed two colonies at one feeder. Take off the cover of the lower hive; put on a queen-excluder, and set another weak colony over the zinc queen excluder. When you once have these supplies they last a lifetime. The bees will carry up eight quarts in one night, and not lose a bee by drowning.

CALVIN CRAIN.

Sparta, Mich., Feb. 26.

A DOUBLE-BOTTOM-BOARD-PLAN OF KEEPING DOWN INCREASE.

Mr. Root:—I am sending you a diagram of a double hive-bottom that I have used for some years. This bottom is large enough for two hives side by side, and is used when no increase is wanted. It has given good satisfaction in my yard.



A colony is placed on bottom marked A. When it casts a swarm, or when I brush a swarm from it, the old hive is moved over to the bottom marked B, and the swarm is placed on A. The entrance from A to B is closed, and the little runway between the two hives is closed with wire cloth to give the bees in the old hive a chance to ventilate but not get out.

As soon as the new swarm gets nicely started, open the entrance between the two hives, take the super off the old hive and put it on the new one. Leave the wire cloth on the runway between the hives, compelling the bees of the old hive to go through the new one to get out, since there is no other entrance.

When the young queen from the old hive undertakes to make her wedding-flight she is killed by the bees of the new swarm.

If a second queen should hatch she is treated in the same way. When the bees in the old colony find themselves hopelessly queenless they will join the new swarm. When the honey flow ceases, the bees from the new swarm will carry the honey out of the old hive and put it in the super of the new one. Now stack up the empty combs in a suitable place for next season.

Willamette, Ore.

JOSEPH EGGE.

[From a hasty examination of your plan I am inclined to believe it would work very satisfactorily. If you say it does, of course it would. Whether it would be better than some of the other plans for keeping down increase I leave each one to decide for himself. It is my impression that a young queen, when she enters the other hive for the purpose of getting out into the open air to mate, would in many cases supplant the old mother. I have seen so many instances of this kind that I have almost come to the conclusion that the young upstart is generally given the preference—that is, if the bees take any hand in it. It has been my belief that the young queen will go through the hive, find her old mother, and proceed to kill her, as she is usually stronger, and, on the principle of the survival of the fittest, the weaker is displaced. Possibly the bees may assist one or the other of the combatants.—ED.]

A CURIOUS BEE-TREE.

I should like to tell of a curious bee-tree I found to day. While searching for a United States stone bench-mark in a woods my attention was caught by a swarm of bees working in a witness tree to this stone. The stone was set in 1882, and two trees blazed as witness trees. One of these, a box-elder, had decayed at the blaze, forming a cavity on the inside; but the outer wood was alive, and had grown a thick fold around the blaze, leaving an opening about 12 inches high and 8 inches wide. Now, what caught my eye at once was this: That the exposed combs (and the opening was full of them) were all *edgewise to the outer air*, just as in a modern hive. I was at once reminded of an article in a recent number of GLEANINGS relative to the reasons for placing frames lengthwise and not crosswise. The day had been warm, and the bees were flying outdoors; but although I was at work for some time within five feet of them they did not bother me. The opening was 4 feet from the ground. The bees were rather small, and tinged yellow nearly all over except on the back.

W. M. ANDREWS.
Greenville, Miss.

THE YELLOW SPIDER.

Last summer I had some experience. As the goldenrod was in bloom I found that dead bees hung thereon. By diligent search I found the yellow spider spoken of on page 232.

RUDOLPH LICHTWER.

Milltown, N. J., May 7.

BEE-KEEPING IN THE STATE OF WASHINGTON.

In reply to the query of E. J. Johnson, p. 442, I would state that I have lived in Clarke Co., in the southwestern part of Washington, for nearly thirty years, and to the best of my knowledge there is no one in the bee-keeping business exclusively, it being principally carried on by the farmers who own a few colonies apiece, usually not more than twenty; and when they use a hive that is recognizable as such it is usually of the Langstroth eight or ten frame size.

Our principal honey-plants, I believe, are white and alsike clover, a low scrubby bush called here buck-brush, which has a small bell-shaped pink flower, followed by a round berry which is white when ripe; willow, the soft and vine maples; fruit-bloom, and, in the wilder parts, fireweed. In the eastern part of the State there are alfalfa, sweet-clover, catnip, and horehound. Besides the above-named flowers there are numerous other varieties of lesser importance, but in no part is the quantity large enough to warrant extensive bee-keeping.

In regard to the fir-trees it was only once, several years ago, that I noticed the bees gathering what was apparently an exudation from the trees, and I believe it was only from the white firs that it was gathered; and the grade of honey produced was unsalable, being of a dark resinous nature, and partly candied, or, rather, granulated, when it came off the hives. This, I believe, was the result of a very dry time when there was little or no nectar obtainable from the usual sources. JOHN B. ADDISON.

Washougal, Wash.

HONEY IN THE BROOD-NEST WHEN RUNNING FOR COMB OR EXTRACTED HONEY.

On p. 84 W. K. Morrison says, even where extracted honey is run for in the orthodox manner, there is too much honey in the brood-nest and too much swarming. Whether I run my apiary in a correct manner in Mr. Morrison's estimation or not, I find my colonies of bees that I run for extracted honey just opposite the statement he has made above. I use the Langstroth frame in the brood-chamber, and queen-excluder above. I find those I extract from do but little swarming, and that the brood-chamber has been so filled up during the breeding season with brood that there is but little honey for winter. It is all stored in the extracting-frames above, and I have to hold in reserve full extracting-frames of honey for their winter use; and he says it is needless to say the conditions are worse when comb honey is sought for. The bees keep piling in honey in brood-combs till actually the colony dwindles to a mere handful of bees. I can not see where his shallow-frame hives are going to prevent them from dwindling, for the more young bees we have the less the death-rate. They must have plenty of room to rear brood if they are strong colonies, and we must have strong colonies when the honey-flow comes if we get a good yield of

honey; and I believe it is generally admitted that it is not the shallow hive that winters best in our nothern climate on the summer stand.

I have found nothing that has been better for my use than the Langstroth frames, and ten of them in a hive; but the next thing of great importance is a prolific queen—one that will keep these frames full of brood, and I have not found any better than a Carniolan queen to do it.

Harrison, Ohio. J. G. CREIGHTON.

IS IT NECESSARY FOR A QUEEN-BREEDER TO HAVE A LARGE NUMBER OF IMPORTED BREEDERS?

The Chambers cell-building hive may be all right, but why all this multitude of imported queens? It seems to me useless when he can get the number of queens desired just as well from one or two as from fifteen, and certainly home-raised queens are just as good as imported, for cell-building; and if the imported is kept in a small mating-box, such as I use, it is as handy, or more so, than to have a large hive to look over for larvae of the right age to graft with. Also, he will find the wear and tear will be much less on his breeder than if kept in a large hive with a full colony. All I do when I want to start a lot of cells is, four days before, to put a clean card of worker comb in with my breeder, and I have larvae just as I want them in a small, convenient frame to handle, and of the right age to graft without a hunt all over a large frame for what I want, as I sometimes have to do.

Hartford, Conn. A. W. YATES

HOW SOME PEOPLE HANDLE BEES.

The outlook for the bee industry in these parts is not encouraging, because of the great losses in bees. This loss is due to the short honey crop and to careless methods in handling. Our surplus honey is gathered from white clover, and is principally gathered in June; and by the slipshod method of handling bees here they are seldom in condition to store any surplus honey. The seasons of 1903 and 1904 were good for surplus honey, and everybody was buying bees and going into the business, thinking all the knowledge necessary for handling bees was to know how to hive them and take off the surplus honey. To give an idea of the way some parties handle bees in this locality I will give a brief description. This includes a majority of the bee-keepers of these parts. They leave the colonies on the summer stand all winter without any protection, with the super on filled with sections. A great many use the old box hive, and think it superior to the frame hive; and a great many of those who use the frame hive never look inside nor make any effort to control swarming. It is even no uncommon thing to hear bells and raps rattling during the swarming period.

Republic, Mo. GEO. W. BRYANT.

**THE ALEXANDER PLAN FOR BUILDING UP
WEAK COLONIES; USING BURLAP AT FIRST
INSTEAD OF EXCLUDING ZINC TO PRE-
VENT FIGHTING.**

I have read Mr. A. A. Clark's article, p. 658, concerning his failure with Mr. Alexander's plan for weak colonies. My bees are a mixed lot, some of them a clear black. I tried four colonies, putting a piece of new burlap on top of the strong colonies, closing up the entrance of the weak ones, then setting them on the burlap. Part I left closed in 24 hours, and the others 48 hours. As I had been sick all winter, and not very strong, I was about a week doing the work, and did not commence it until they had been out of the cellar two weeks. After 24 and 48 hours I removed the burlap and put in its place the queen-excluder. I couldn't see that the bees fought, and I think it is a big success. One of the weak colonies is nearly full of brood now. Another full colony had no queen. I found one colony with less than a teacupful of bees, with a good-looking young queen. I put the burlap on the queenless colony, with the hive containing the few bees and queen on top of the burlap, the bees being shut in the top hive. In 48 hours I took away the burlap and let them go together without queen-excluder. In two days they were carrying in pollen in fine shape.

Mt. Pleasant, Mich. H. S. WHEELER.

VERTICAL VS. HORIZONTAL WIRING.

I have just read Dr. Miller's Straws, p. 412, regarding horizontal vs. vertical wiring of brood-frames. In looking over the bees of a friend a few days ago I noticed that the frames they were on (L. frames with 3 top-bars) were wired vertically, and it soon occurred to me that these combs had not sagged the least along the top-bars, as many of my horizontally wired combs in Hoffman frames did; neither have I found any combs in those twelve ten-frame hives in which the foundation had bugled while it was being drawn out by the bees.

My horizontally wired combs do not nearly, in average, come up to those combs, for which I can only blame my style of wiring. After reading Mr. E. F. Atwater's article in the *Review* and Dr. Miller's comment in the before mentioned Straw, together with what Dr. Miller has to say bearing on this matter in his "Forty Years Among the Bees," I have decided to give vertical wiring a trial this season and then compare results.

J. G. BAUMGAERTNER.

New Memphis, Ill.

**ANOTHER PLAN FOR GETTING BEES OUT OF
THE WALL OF A BUILDING.**

The article on page 433 reminds me of my first bees which I got two years ago the same way. I have since learned a better way, however. Often one does not wish to damage a building, and it is a sticky job, even if you do not get stung. My way is to stop all holes but one. Over this put a Por-

ter bee-escape. This should be done on a bright warm day. In about an hour there will be a lot of loaded bees trying to get in. Have a hive ready the same as catching a swarm with a brood-frame with brood and eggs in. Set the hive as close to the escape as possible. Now drive in the bees with your smoker. It is very little trouble. They will take possession, and start a queen. The bees will go in as fast as they come out, and inside of a month all will be out. Then you can take off the escape and they will bring out the honey and store it in the hive. It takes very little time, and does not damage the building. You don't get stung, and you have a good queen. ALBERT I. MILLS.

Ignacio, Colo.

A QUESTION CONCERNING REASON AND INSTINCT.

Allen Latham, in *American Bee-keeper*, tells of a small colony of bees that waxed up their entrance all but a small passage, and asks if it was reason or instinct that prompted them to do this. I will relate some of my experience along this line. I found a bee-tree about four years ago in the month of June. They had not been there more than one month. They had their entrance waxed up all but just room enough for one bee to enter at a time. Again, I found two bee-trees last June. Owing to my being very busy I did not cut them. They are standing yet. One of the trees has an entrance on the south side some six feet up from the ground. They have no more wax around the entrance than is usual in this locality. The other has an entrance some 15 feet from the ground. The entrance on the north side of the tree is large enough to get my fist in. The bees have closed this entrance all but a small passage. Was it reason or instinct that prompted them to do this? I am bound to say, as probably Dr. Miller would, "I don't know."

Furlington, Texas.

W. M. JONES.

HONEY IN BROOD-COMBS.

Is honey extracted from combs in which brood has been hatched unfit for human food? A prominent bee-man tells me that it is not; but from what I have read in GLEANINGS, I believe that a large number of bee-keepers practice this method. It is more convenient, many times, to do this than always to extract from white combs in which a queen has never laid. L. A. H.

[Honey from combs in which brood has been reared is always a little darker than honey from fresh combs, so they should be used only in cases of necessity. If such combs have not been used very long for brood rearing, however, the honey may not be enough darker to make any material difference in the selling price. As you say, it is not always possible to use combs which have never been used in the least for brood-rearing —ED.]

BEE KEEPING IN WESTERN NORTH CAROLINA.

Last season was a poor one here. Most bees are going to die from starvation except those who have them in standard hives and have given them proper attention. I have a few colonies of blacks and Italians in fine order, but I had to take supers from the Italians and give to the blacks, for stores. Italians go far ahead of blacks for me.

I had a few colonies of Italians in 1904 which filled three supers of fine honey. My neighbor had some that did the same. He was taking GLEANINGS, and we tried to keep posted on our bees. While our bees were doing this, others around us got scarcely any surplus. I lay it all to reading the plans laid down in GLEANINGS, and a good strain of Italian bees. Bee culture is in its infancy here yet; but I think it is growing nicely. We have a good market for all the surplus honey we can get, right at home. We get from 10 to 15 cts. per pound, according to color and quality. The finest and most surplus we get is from the sourwood, a noted tree with us for its fine-flavored white comb honey. We think it the finest honey in the world, although it does not give us a crop every season.

Honey plants and trees of this section are maple, poplar, blackgum, holly, persimmon, fruit-trees, blackberry, grape, plum, sumac, and various other small plants. The pea is getting to be quite an item here for bees in a late fall crop.

MONROE MOOSE.

Stony Point, N. C., Jan. 22.

DOES FEEDING PAY?

As the bee business is still new to me, answers to the following questions would be a great help:

1. When a queen's wings are clipped, and a swarm issues from a hive, the queen will, of course, fall to the ground in front of the hive. Now, suppose the bee-keeper were away, perhaps to be gone four or five hours; would the queen, after the bees had returned to the hive, find her way back, or would a part of the bees cluster about her and take care of her, or would she be apt to be lost or die?

2. In feeding for the purpose of stimulating brood rearing, how would it be to take a thin board the size of the hive (outside measurements), and cut a round hole in the middle just large enough to admit either a pint or quart pepper-box feeder, then tack two narrow pieces of tin across the hole each way? Now fill your pepper-box feeder; put the board on top of the hive in place of the cover, with tin strips next to the frames. Put the feeder, top down, in the hole, and the tin strips will hold it a bee-space from the frames. Now put an empty super on, and a cover over all. Then every day you can take the cover off and quickly charge the empty feeder for one with syrup. I have never tried this; in fact, I never fed bees in my life; but I should just like to know if you think it would work all right

and if it would be as good as any other kind of feeder for stimulating brood-rearing.

3. In the A B C of Bee Culture, page 160, under "Feeding and Feeders," it says, "Whenever possible, feeding should be avoided." Does that still hold good, or do you think feeding a little every day in the spring will pay? or is it better to keep the bees warm and let them take care of themselves as far as feeding goes, if they are fairly strong and have a good supply of honey?

NORTON C. MILLER.

Girard, Pa., April 9.

[1. In the great majority of cases the queen will find her way into the hive. If hives are set flat on the ground, or on low hive-stands fitted close to the ground, with an inclined runway to the entrance, the queen will be very sure to find her way back.

2. The plan you describe is essentially the one we have used for years in our own bee-yards, with this difference, that we do not make use of the strips of tin, for the ordinary pepper-box feeder as put out by supply-dealers has a bee-spaced rim of tin so that, when the feeder is set down on the frames, it will be held a bee-space above them.

The advice still holds good; but you must take into consideration seasons and circumstances that are present at the time. In the spring, stimulative feeding, if not practiced too early, will generally be found to be profitable, especially if the bees are not abundantly supplied with stores. Unless the bees have stores in super, or more honey in the brood-nest than is usually found, stimulative feeding in the spring pays and pays well. As Doolittle has pointed out, a colony that is not "rich in stores" will curtail brood-rearing.

Yes, avoid feeding where you can. It is a far better practice to give combs of sealed stores laid away from the previous season than to stir up a colony by giving it liquid food if the nights should be at all cool; or if the weather should be variable when bees can not fly, feeding should be avoided, because it excites and stirs up a colony, often resulting in over-stimulation, causing brood to be chilled.—ED.]

IS IT SAFE TO BUY SOUTHERN QUEENS FOR NORTHERN APIARIES?

On p. 498 I notice Mr. Coggshall advises not to bring bees from the South, as they do not stand this climate, etc., and your advice is the same. Now, is this not positive proof that northern bee-keepers should not buy southern queens? As Mr. Coggshall brought his bees to this State from Georgia about the first of June, every thing was changed by fall except the queens; and as the queens were Italians reared in the South they were, without doubt, of the common Italian stock of the South. The result would be the same, according to this, as in buying southern queens.

C. L. TODD.

Hartwick Seminary, N. Y., May 10.

[I do not think that Mr. Coggshall meant to imply that southern-reared queens were not as good as those reared in the North; at all events, we have never been able here at Medina to detect any difference in vigor of the stock or its longevity, and we have had abundant opportunity for observation.—ED.]

HOW TO PREPARE HIVES FOR MOVING BY THE CARLOAD.

Mr. Root:—Thinking that the Root Co. has had more experience in shipping bees by the carload than anybody else in the North, I should like to ask a few questions about such work. I have moved whole apiaries with a team, but never by rail.

1. Can bees be shipped on loose hanging frames, combs built without wire, the most of them old and tough?

2. Had I better place a notched stick in the bottom of the hives to prevent the frames from swinging about? or would nailing the top-bars be sufficient?

3. About how many chaff hives will a car hold?

4. What kind of car would you prefer—box or stock?

5. Bees are supposed to have the chaff cushions on at the time mentioned. Would it be safe to lay the wire screen down flat on the top-bars, or should there be a narrow rim placed on, and the wire screen on the rim?

6. How would it do to change them into single-walled hives and place a piece of thin section between the hive-body and the lid, and nail them down tight, and not use any wire over the top-bars?

7. Do you think the last plan mentioned would be a little too chilly for them that early in the season?

8. When combs are very heavy with honey, should one side be extracted?

9. About what will it cost to run a car-load of bees and supplies a distance of 500 miles?

10. How long will they be on the road?

11. Should the bees be all placed in the bottom of the car, and the lighter stuff placed on top?

12. Should the front of the hives be placed to the front or rear of the car?

13. Should they be placed solid in the car?

14. Is a man allowed to go with the car?

Friendly, Va. SAMP. WILLIAMSON.

[Yes; but we would advise piling the hives upon straw, and packing straw between the hives to cushion the jar or bumping of the ear.

2. Yes; use a notched stick at the bottom and two at the top. The notches should be just wide enough to slip over bottom-bars and top-bars of those used on top. Of these latter, one should be used at each end, and tacked down right over the rabbit.

3. This is a hard question to answer, as box cars vary so in size; but at a rough guess I should say you could put at least 100 two story-chaff hives in an ordinary box car,

and probably three times as many as the ordinary single-walled hive.

4. Use a box car in cool weather. In very hot weather perhaps a cattle-car might be better; but if the bees were to be exposed to the hot sun for any length of time, the box car, even in the hottest weather, would be better.

5. Do not use any chaff cushions on top of the hives at the time they are being shipped. If it is warm weather, the wire cloth should be raised above the frames by a rim two or three inches deep.

6. You could do this; but if you have room in the box car, chaff hives would be just as well. In cold weather a piece of thin section between the hive-body and the lid or cover would answer just as well, perhaps, as wire cloth, and perhaps would be much cheaper to apply.

7. No. I do not think the single-walled hives would be too cool in your climate unless you were going to a place where it is very cold.

8. Yes, or take them out entirely and put in other combs not quite so heavy.

9. This question can not be answered, because you do not state in what direction nor on what road the bees are to go. Your agent ought to be able to give you definite information on this point.

10. Your agent could answer this question also.

11. The bees should be placed on a thin layer of straw to cushion them, as explained in No. 1. The hives should not be piled high—at least not more than two or three high, and lower if you can get sufficient room without tiering up.

It makes no difference which way the hives face, so long as the frames are parallel with the rails on which the cars run. This is very important. Do not make the mistake of putting the frames at right angles to the rails.

13. The hives should be cushioned between each other with straw.

14. Yes, a man can go with a car.—ED.]

BEE-SPACES BETWEEN SUPERS.

Do you recommend a bee-space between the supers? This is a great question with me. Some recommend it, and some don't, so I will take your word for it.

Helena, Mo.

E. TRACHSEL.

[By all means have bee-spaces between your supers. I do not know of any modern bee-keepers at the present time who would dispense with them. All factory-made hives, so far as I know, are provided with them. A hive constructed without them would be a fearful bee-smashing affair, to say nothing of the time it would consume in handling it.—ED.]

COMB ATTACHED TO SEPARATORS.

For two years my bees have been determined to build the honey on to the separators, and so spoil my sections for market. Now, what is the reason for that? Some

one said he thought it was because hives did not stand exactly on the level.

MRS. ORVILLE BUCK.

Farmington, Wash.

[This building of combs to separators is somewhat dependent on locality, but more on the strain of bees. By introducing a new queen into the hive that shows this tendency you may remove the comb-building propensity somewhat. Of course, if hives are not plumb the foundation will lean toward the separators in a way that will invite attachment when combs are being built out.—ED.]

CLIPPING QUEENS; IS IT ADVISABLE TO CUT OUT QUEEN-CELLS AFTER THE PRIME SWARM HAS ISSUED?

I wish to ask for information concerning bees. First, is it proper to clip the queen's wings before swarming in the spring, so as not to have the swarm leave the apiary? I have read a few articles on this subject, and have found but one where they recommended this, and that is in an article the G. B. Lewis people put out two years ago this spring. I tried this plan; and as I was not there every time when they swarmed, the queen would get in the grass, and I would lose her, probably stepping on her, or something that way, and I met with bad success, losing half my colonies, as they would be robbed by other bees. Probably I do not fully understand this system; and so in order to know the right way I write to learn it, as I consider GLEANINGS one of the best authorities I have.

Another thing I should be glad to know is, after the old swarm has left the hive do you think it advisable to go through the old hive and cut out all the queen-cells so there will be no more swarming? I believe one swarm is enough to take from one hive. If you take more than that you generally have weak swarms, and they make but little honey. I took my 34 colonies from the cellar April 7, and lost 3 out of the 34. All died of different things.

Waldron, Mich. FREDERICK M. BOYD.

[The majority of bee-keepers probably practice the plan of clipping all queens. But if you can not be present when the swarm issues you had better force a swarm artificially. In this connection read up the shaken-swarm plan as discussed in these columns about two years ago. A still better plan, perhaps, is to follow the Alexander method of making increase as described on page 423. If a colony persists in swarming with a clipped or confined queen, the bees are liable to kill her; hence the necessity of following one of these latter methods.

One swarm is generally enough from any one colony. You can, to a certain extent, prevent after-swarms by cutting out all queen-cells after the first swarm has issued, but there are several other things to take into consideration; and it would pay you, therefore, to look up this whole subject in the A B C of Bee Culture.—ED.]

THE ALEXANDER METHODS; HOW CAN THEY BE USED WITH CHAFF HIVES? SUPER-COVERS MADE FROM PAPER.

The queries I may ask may be like many others that you receive. If so, please answer in GLEANINGS. Mr. Alexander says no bee-keeper should have hives without movable bottoms. Why are not chaff hives made so it is possible to use his feeder and to build up weak colonies on his plan, which I believe is a good one. As I have chaff hives I can not try it? It looks as though super-covers could be made very cheap from paper, or like chair-bottoms, as 20 or over are sold for 10 cts. a piece. In theory and practice it has been the plea to make hives as simple as possible; but Mr. Aspinwall has taken a big jump the other way in his hive shown in GLEANINGS of April 1; but if it will do as is claimed I should like to try them, provided the price is not too high, and if bees can be wintered out of doors in this latitude.

J. S. DEAN.

Castleton, Vt.

[The regular chaff hives are made with the packing below the frames as well as around the sides. By a little changing, the hive could be so designed as to leave off the packing beneath, so that a movable bottom could be substituted. But this would probably mean that it would be more expensive on account of the extra number of small parts; and, besides, it would not be as warm in winter. With the chaff hive, therefore, some other feeder had better be used.

When using the Alexander plan for building up weak colonies it would not be necessary that the upper colony be in a chaff hive. The combs of bees could simply be transferred to a single-walled hive which could be placed above the excluder over the strong colony in the chaff hive in the regular way.—ED.]

DO QUEEN-BEES TAKE A CLEANSING FLIGHT THE SAME AS THE WORKERS?

Last spring we had a protracted cold spell with a very heavy snowfall for 14 days; and the bees, which had been unusually active prior to this, were kept in constantly until March 25. While looking at them I noticed a queen lying on a board in front of one of my strongest hives. I took her to the house and laid her on a window-stool in the kitchen. In the afternoon I went to show her to some company, but I found she was missing. After a short search I found her alive, well, and fixing up her toilet ready to take a fly. I took her back to the hive, opened it above, and noticed the workers received her in the cordial way so peculiar to their instinct. I have kept a few colonies of bees for thirty consecutive years, both for pleasure and profit; but this is the first incident of this kind that has ever come to my notice.

Muncie, Ind.

B. T. BOYD.

[Cheshire, in "Bees and Bee-keeping," Vol. I., page 148, shows that the workers are structurally compelled to take a flight in order to cleanse themselves. He then goes

on to show that the queens do not need to take a flight. He says, "The queen is an exception, so far as her capability of removing the intestinal residua is concerned, as her ovaries occupy the space taken by a pair of large air-sacs in the worker and drone, so that she on foot, and for an obvious reason, possesses the power the others acquire only when on the wing."

We are unable to say why your queen should have been found on the alighting-board, but the probabilities are that she had not been flying.—ED.]

CROCUS-BLOSSOMS; THEIR VALUE IN THE SPRING.

I have ten colonies of Italian and hybrid bees in eight-frame and jumbo hives. The hives are located on land sloping to the south, with higher land, wooded, to the north. About 200 yards to the south of the apiary is a small plat of land in front of a greenhouse, which, some years ago, was planted with about 300 crocus-bulbs. These have multiplied, until to-day there are probably 10,000—a beautiful sight when in full flower, which they have been for the past two or three weeks. April 5 I examined my bees and found in every hive more or less unsealed honey. One very strong colony had built comb on top of the frames under a home-made Hill device, and had, I should think, at least 3 lbs. of unsealed honey in the hive. As there are absolutely no other flowers open in this vicinity, and as I have noticed the bees working very freely on the crocus-flowers, I am quite sure that they gather the honey from those flowers. I have noticed the same thing to a less extent in previous years.

The question that arises in my mind is, will it not pay bee-keepers to plant some of these bulbs for making early pasture to induce early brood-rearing? The bulbs are very cheap, increase each year, once planted need no further care, and for giving the bees early feed for stimulating brood-rearing, would, I believe, prove much cheaper than feeding sugar syrup. Of course, my location and conditions may be exceptional.

Millbrook, N. Y. I. L. POWELL.

CHANGING HIVES WHILE A SWARM WITHOUT A QUEEN IS IN THE AIR.

I had a swarm come out twice. It flew around, and, not finding the queen, it went back to the old hive. The third time they came out as before. As soon as they all got out I looked around the old hive, and then I found the queen walking around on the ground, but she could not fly with the swarm. I removed the old hive from the stand and covered it up with a sheet. I took an empty hive and put it on the old stand, placing the crippled queen in the empty hive. After the bees had flown around awhile, not finding the queen they came back, as they supposed, to the old hive, but instead they found an empty hive with their queen in it, and they were contented. After they settled I took

the new swarm and put them on a new stand; then I took the old swarm and put it back on the old stand and uncovered it. Business was then resumed as before.

Delhi, N. Y. J. DEWITT SMITH.

HOW TO GET RID OF LAYING WORKERS.

If laying workers appear in one of my hives I move the old hive to one side and face it the opposite direction; then place a new hive on the old stand, and give a frame partly filled with honey and also two frames containing full sheets of foundation. When enough bees return to cover at least one frame I give them a frame of sealed brood, and two days later introduce a queen. Four or five days later, I shake the remainder of the bees in the old hive in front of the new hive, putting on an Alley drone-trap to prevent the drones entering the hive.

Dodge City, Kan. P. R. HOBBLE.

A GRAPE-BASKET ON A POLE FOR A SWARM-CATCHER.

One of the handiest devices for taking swarms out of tall trees (or short ones either) I have never seen mentioned; viz., a common grape-basket. I have taken swarms from trees 60 to 75 feet tall. Take a light pole with the basket on the end, and shake the bees into the basket, and they will cluster in it. Let it down with a rope from tall trees. It can be carried in a basket very easily.

W. H. PRATT.

Sugar Grove, Pa.

OUTDOOR FEEDING; A FLOAT IN THE TROUGH TO KEEP BEES FROM DROWNING.

In reading GLEANINGS, p. 494, on outdoor feeding, I thought I would tell you about the feeder that I have found very satisfactory for outside feeding. A box or trough similar to that described on page 494 can be used. I do not like to give bees a chance to tumble each other into the syrup or honey, which I find they do on not covering the syrup. Inside of a box I fit a half-inch stock and bore it full of auger-holes, about $\frac{1}{2}$ -inch, and cover the board with wire screening; pour honey or syrup on the box, and put the board with screen on, right in the syrup-board. If the screen is tacked on well it floats on top of the syrup. If it does not settle down low enough in the syrup for the bees to reach, put a weight on the board so it will settle low enough for bees to reach.

W. G. ASBELL.

Sussex, Can., April 29.

THE PLAN OF HIVING ON STARTERS OF FOUNDATION UNSUCCESSFUL.

I should like to hear from some bee-keeper who practices hiving on strips of foundation. I use one-inch strips, and usually find them gnawed down by bees, and combs built crosswise. I also find altogether too much drone comb.

B. J. HOLDEN.

Dorset, Ohio.



Remember the sabbath day, to keep it holy.—EX. 20:8.

Blessed is the man that walketh not in the counsel of the ungodly, nor standeth in the way of sinners, nor sitteth in the seat of the scornful.—PSALM 1:1.

It seems probable that dirigible balloons are going to be quite a feature of our city parks and other resorts; and our dailies last week were giving notice that there would be a number of ascensions from Luna Park, Cleveland, during the present week, commencing on Sunday, June 3. As soon as I noticed the opening flight would be made on Sunday, I said to Mrs. Root that there would very likely be an accident, and perhaps the aeronaut would lose his life. May be some of you will call me superstitious when I insist that Sunday is *not* as good a day for such reckless feats of daring as some other day. I do not think I am superstitious or unreasonable; and I am well satisfied myself that Sunday is no different from any other day except as community at large make it different. Our nation has decided that our American Sunday is to be a day of rest. I would accept it as the day that God told us to remember and keep holy. The man who has no regard for the feelings of Christian people, especially church-going people, is a man who will be likely to have trouble any way. He is not a person, in my opinion, to be intrusted with such risky business as going up in a dirigible balloon. It is a sufficiently reckless undertaking in the present stage of invention to be undertaken any day in the week. Whoever does it should have careful advisers and careful helpers—men who can look over the apparatus and see that every thing is all right, and as safe as we know how to make it. Such men can not be found who will volunteer their services for a Sunday ascension. When the *Leader* for this morning, June 4, announced that the air-ship broke in two when about a thousand feet up in the air, I do not believe I had much of a disposition to say, "There, I told you so;" that is, not in a way that I would want to boast that my prophecy or prediction had been fulfilled. I mean this: It is just about what we might reasonably expect the result to be with the average man or men who will lend themselves to such an undertaking on Sunday. Before I knew that their initial flight was to be made on that day I had planned to make a trip to Cleveland to see it, although I confess I am not much interested in any machine that has to be pulled up in the air by a balloon to enable it to fly.

Our second text admonishes us to be careful about the company we keep—the crowd

we are in. I very much dislike to travel in any way on God's holy day; and I especially dislike it because of the crowd I am forced to go along with or be classed with. I do sometimes travel on Sunday. I suppose ministers often feel almost obliged to patronize electric cars on Sunday in order to make their appointments; but I hope—and, in fact, I believe—that our good ministers are very careful to avoid accepting any appointments that necessitate Sunday travel. In the same way, I would try to avoid using the electric cars to get to church; first, because we are giving the car people an excuse for Sunday traffic and the managers for their Sunday work. Second, because of the low character of the crowd we are almost sure to get in with.* If I could not get to church in any other way than by the electric cars I do not know but I would patronize them; but I would try hard to keep out of such a condition of things.

In this same Cleveland daily that mentions the collapse of the air-ship and the narrow escape from death of its operator (he was taken up unconscious, but escaped with his life), we have another item of news that I wish to give you:

DIVER'S CLOTHES STOLEN AS HE RECOVERS BODY.

While watching his father fish from the pier at the foot of Willson Avenue yesterday, Frank Ficre, six years old, No. 1161 E. 61st Street, fell through a hole in the dock and was drowned. More than a hundred persons were close by. Several of them saw the boy fall and heard his cries, but none attempted to rescue him.

Flynn & Froelk's ambulance was called. John Thrasher, one of its crew, volunteered to recover the body. He stripped, and dived three times. The third time he recovered the body.

Thrasher left his clothing on the dock. While he was under water some one stole all of it except his trousers and coat. These were thrown into the lake.

The Ficres are Hungarians. The father is a laborer.

Now, friends, it will repay you if you read the above over carefully. Even if it is a brief sketch of a sad accident, it throws considerable light on a good many matters. We do not know much about this father; but we do know he did not hesitate to go fishing on Sunday and take along his six-year-old boy. It seems to me he must have been a stupid heartless father to allow that boy to be playing on a dock where there were holes he might fall through. We also wonder that he permitted the boy to get so far away that he did not see him fall nor hear his cries. A hundred persons were close by. What were they doing there on Sunday?

* Here is something I have just clipped from the Cleveland *Plain Dealer* in regard to the crowds one is pretty sure to meet on Sunday travel:

"The New York Tribune remarks that it would be a good thing to station policemen on all Sunday street-cars returning from pleasure resorts. It would be a good thing—just as good a thing in Cleveland as in New York. When it comes to streetcar hoodlums Cleveland won't take a back seat for any one."

Why do the Tribune and Plain Dealer specify Sunday street-cars returning from pleasure resorts? Because, as everybody knows, the class of people who visit resorts on Sunday are a lower class and a tougher class than go to resorts and excursions held on week days. One might think that even resorters should be a little more dignified and manly on God's holy day; but it seems to be just the other way. My friend, do you want to be in that kind of crowd? do you want to be classed as one of them?"

What sort of people were they, any way? The paper tells us that several saw the boy fall, and heard his cries; but not one of the hundred attempted any rescue. Is such a thing really possible in any city in the United States? Were there no women in that crowd of a hundred or more? Were there no mothers there who could make a fuss and call on some of the men to save the boy? Surely there were plenty of swimmers in that crowd; but not one did any thing or made any attempt at rescue. It certainly was an unusual crowd. God forbid that there should be many such crowds in this land of ours.

After the boy was dead beyond possible resuscitation somebody called an ambulance. Then, and not before, a man was found (with the ambulance) who volunteered to recover the body. By the way, I have often wondered why people the world over make such a fuss and go to so much expense to recover a dead body. I would not mind risking life and risking money without limit to save the life of a man, woman, or child; but what can anybody do with a dead body—that is, compared with the importance of saving a living body? This man Thrasher dived three times before he succeeded in finding the body of the boy. What did the crowd do meanwhile? Did they have ropes or clothing tied together, or something of that sort, to assist the diver in getting out with the body? Did they encourage him with sympathy? Was a purse made up for the man who was willing to dive down into the cold water to get even a dead body? We are not told any thing of the sort. What did this crowd of over a hundred people do? Why, they stole his clothing while he was under the water in pursuit of the boy who was dead! (I do not know exactly why, but in some way it reminded me of the soldiers who cast lots for the clothing of our crucified Savior when he was silent and still, nailed to the cross.) The vest, perhaps, contained his watch and money. The trousers and coat were of comparatively little value so they were thrown into the lake. But why did not somebody tell the diver, when he looked around for his clothes, who it was that had stolen his "raiment"? Come to think of it, why did not somebody in that crowd of a hundred protest against such inhuman work? The last sentence informs us that this father and son were Hungarians. Was that whole crowd Hungarians? or what were they? Was that crowd a sample of the people who are being unloaded in the United States by the hundreds, thousands - yes, I might almost say a million—in the course of a year? They are coming here, scattering all over our land in order to become American citizens. The task devolves on us who profess to love the Lord Jesus Christ to educate and Christianize these throngs of foreigners. I believe something is being done in the way of restriction. Perhaps some are sent back who might make good citizens: and may be some are permitted to come in here among us who are hardly fit or worthy of an abiding place

on the face of the earth. May God help us if this brief newspaper sketch is a picture of some of the crowds that are peopling our land.

Now, friends, what are we each and all doing to help preserve God's holy sabbath? What are we doing to preserve the dignity and manhood of those who occupy our broad acres? A very good friend of mine was at work this morning on my automobile. He is a bright young fellow with a wife and two children. Both he and his wife are members of the church. He is a very busy man, and has a keen love for every thing that is going on in this country of ours, especially the mechanical world. He is bright and keen to grasp hold of new ideas. I think he reads quite a little in our mechanical books and papers; but I was pretty sure he did not attend church very regularly. Said I: "John, you are going to church nowadays, are you not?"

He laughed, and hung down his head, and said he was ashamed to say he had not been much of late. He next told me of some of the obstacles that stood in his way. I told him about the clipping I have given above. I reminded him of the tendency among people who do not go to church; of the inhumanity, the stupidity, and the awful indifference among those who know nothing of Christianity and God's love. He has a girl five years old who goes to Sunday-school quite regularly, but he admitted that he did not go with her. I reminded him how much his keen judgment and sense of right and wrong might help in holding up the church of Jesus Christ; and I also cautioned him in regard to the danger of staying away from church and Sunday-school and from prayer-meeting. Dear reader, I felt a desire, when I was talking with him, to talk to you in about the same way. What do you think, my friend, of that crowd that let that six-year-old boy drown and did not try to save him? What do you think of the crowd that let somebody steal the diver's clothing when he was under water? Do you want to be with such a crowd or in such a crowd? Do you not believe the church, the Sunday-school, and the prayer-meeting will be a better place for you and your wife and children on God's holy day? I know all about the excuse that some of you make, that you are shut up on week days, and that you greatly enjoy a June morning out in the open air or out in the country. But, my friend, I do not believe that any of you have to be shut up more than ten hours a day on week days—perhaps some of you only eight. There is lots of time in June, in the morning and evening. At our house it is light enough to see to get around at half-past three in the morning. Then there is lots of time in the evening before it gets dark. Does not that give you time enough to be outdoors? Then, again, the ordinary church service now seldom lasts over half or three-quarters of an hour. Sunday-school takes only one hour, or let us call it that; the Endeavor meeting and the evening se-

vice may take two hours more—that is, provided you have an evening service in summer. Most of you can get quite a little exercise in going to these places and coming home. You can see your neighbors' yards and shrubbery on the way to church and back again. Some of you can go out to your own woods on Sunday afternoon between services; or you can get outdoor exercise by going to see somebody who is sick or old—perhaps some relative whom you can brighten and encourage. May be there is somebody around you who would be glad to have you read the Bible to him. Invite your friends to go to church. Ask your minister what you can do to help him. Take a class in Sunday-school. That, surely, will give you "exercise," especially with such a class as I had yesterday. There were fifteen boys who averaged about a dozen years old. I had a good nice talk with them. They enjoyed it, and so did I; and the memory of their bright faces has been with me almost ever since. I am away from home so much that I do not have any regular class in Medina just now; but I am a sort of supply teacher to fill vacancies.

THE NEW ROOT GENEALOGY.

About 35 years ago a pretty good-sized book was published called "The Root Genealogy." It included the greater part of the Roots in the United States at that period. We succeeded in carrying our ancestry back to England. They came over to America some time before the Puritans landed. Well, just now a much larger book is being compiled; and if any one who sees this is in any way connected with anybody known by the name of Root, Roote, or Roots, the compilers of the book (Root Genealogy Co., Woodmen of World Building, Omaha, Neb.) will be glad to hear from such party. Here is what they say in regard to their work of collecting notes:

Ernest R. Root:—We are beginning to think there are more Roots out of the book than in—at least one-third of all the replies we receive do not have a direct connection. We are now engaged in the Canada quest, and shall doubtless find descendants from the solid old tory, Solomon Root, who left Hebron, Ct., for Canada during the Revolution. There were quite a number of Roots during the Revolution who were counted tories; but I don't think we are descended from that stock.

Our A. I. Root (A. I. Root of Omaha, Neb.) says for England June 6, and will endeavor to look up some early family history.

C. M. Root.

Omaha, Neb.

I have thought best to give this notice because so many are writing to me whose name is Root or who are connected by marriage to some one of that name.

SHEPARD'S CHICK FOOD

is a mixture of carefully selected, thoroughly cleaned and graded broken grains and seeds. Complete ration for little chicks until old enough to eat wheat. Makes them grow faster and feather out quicker than any other feed. Feed dry, and what the flock will eat up clean. Easy to feed. Easy to get. \$2.25 per cwt. Sample on request.

O. C. SHEPARD CO., Medina, O.

BANKING BY MAIL

To accommodate the large number of people who keep money at home, or in a local bank where it is earning little or no interest, this bank receives deposits by mail on exactly the same terms as though made in person. Deposits may be sent safely by postoffice or express money-order, New York draft, check on local bank, or currency. We will on request write you how you can bank safely and conveniently by mail, no matter where you live.

4 PER CENT INTEREST on SAVINGS

Assets of over one-half million and the management of prudent men of solid financial standing give this bank every element of safety.

THE SAVINGS DEPOSIT BANK COMPANY

MEDINA, OHIO

A. T. SPITZER, Pres. A. I. Root, Vice-pres.
E. B. SPITZER, Cashier.

JOSEPH HORNE CO. Pittsburgh, Penn.

Men's Negligeé Shirts, \$1.00

Now while we are aware of the fact that every merchant carries a dollar shirt, yet such shirts are not to be confounded with our famous Staghead brand at the dollar price.

We personally superintend the making of these shirts; we see to it that they are made of materials that will launder, that will give good service; we allow no skimping; we demand that they fit perfectly.

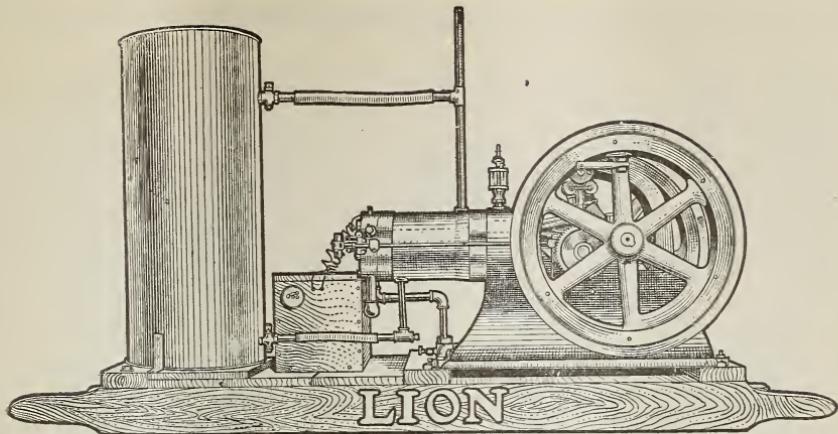
The colored shirts are made of madras—there are stripes of different widths and colors on white grounds, and many small figure effects on white and colored grounds.

There are shirts with attached cuffs and others with the cuffs detachable.

At this same price of \$1.00 we make a specialty of a white negligeé shirt; made of a good grade of cambric, pleated bosom without cuffs or with cuffs attached.

The man who wants the best shirt \$1.00 can buy should let us have his order for two or three of these shirts at once.

EXTENSION NUTS CURE AXLE WABBLES.
Make old buggies run like new. Quick sellers. Very profitable for agents. Exclusive Territory. Hardware Specialty Co., Box 535, Pontiac, Mich.



IT'S READY TO OPERATE

There's no firing-up—no waiting for steam with a **Lion** Gasoline Engine. It is **always ready to operate**. Easily started—no engineer necessary—a boy can operate it. Can be used with perfect safety in any building and is very **economical** in the use of fuel. If you want a reliable, practical, durable and powerful power producer get

The Lion Engine

It is **not** an experiment but an engine that has **made good** wherever used. On the farm it proves especially valuable for operating feed grinders, wood saws, cream separators, corn shellers, pump, etc. It furnishes ideal power for operating machinery used in mills, shops, printing offices, private electric-light plants and water-works. Speed can be changed from 100 to 600 revolutions per minute while engine is running—a very desirable feature.

We sell direct from factory to buyer, thus saving you all middlemen's profit. Lion engines are so simple and practical in construction that with the explicit directions which we send with each engine, it is unnecessary to have an expert come to your place to set it up and start it for you. Get a **Lion** engine and increase your profits with much less labor and time devoted to the work. Write now for catalog giving full information and illustrations of the **Lion** engine. It is free if you mention this paper when you write.

Lyons Engine Company
LYONS, MICHIGAN



85 BEST Farm Gates SOLD to ONE MAN

and are now in actual everyday use on his farm. This certainly is pretty strong evidence of the superiority of the **BEST GATE**. A good gate is necessary to complete the fences on a well kept farm. It will more than pay for its first cost in one season in the time and labor it saves the farmer in passing through it, or in driving from one field into another.

Shelbyville, Ind., March 3, '06.
Best Gate Co., 67-69 E. Jackson St.

Shelbyville, Indiana.
Dear Sirs:—Please deliver to bearer, Albert Luther, six 12 ft. **BEST** Gates for Fairland farm. This will make eighty-five **BEST** gates bought of you for our farms in this county, many of which have been in use several years. They are light, durable, and do not sag or warp, and have not cost one cent for repairs. In view of these facts, I will continue to buy **BEST** Gates, and no doubt will have one hundred or more in use before fall. Very truly yours,
J. B. HAMILTON.

The **BEST** Gate

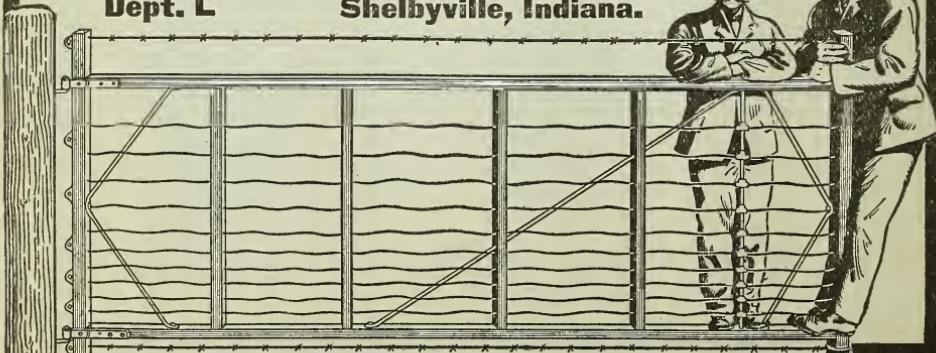
is certainly just what its name implies—it is the **BEST** for any purpose. It is light, strong and convenient to handle. The frame is made of select hard pine and strongly braced. There are **TEN STRANDS OF HIGH CARBON COILED SPRING STEEL WIRE** on this gate which are attached to the frame work with a **PATENT RACHET** so as to allow for tightening when needed. You cannot reproduce this gate for less than **50 PER CENT MORE THAN WE ASK**. We sell the **BEST GATE**

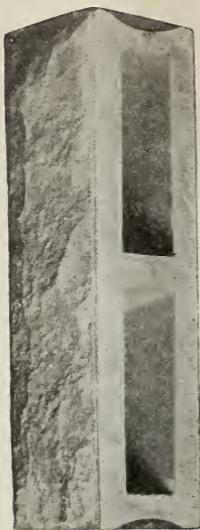
Direct from Factory to User

and PREPAY THE FREIGHT as far as 300 miles from Shelbyville. PRICE \$5 and upward according to the size of gate. The illustration below shows the strength of **THE BEST GATE**. It is not an exaggeration for this gate will hold a weight of more than 700 lbs. without buckling or sagging. Write for our booklet, it describes The Best Gate more thoroughly than we can in this advertisement.

**WE PAY THE FREIGHT
ON THE
BEST FARM GATE**

THE BEST GATE CO.
Dept. L **Shelbyville, Indiana.**





This is but a Block---

It shows, however, what can be made with one of our hollow concrete-block machines.

We have machines for making blocks of many different styles and at many different prices.

Send for our new booklet showing styles of houses and block-making machines.

Yours for the asking.

Medina Concrete Company
22 Court Street, Medina, Ohio

A Great Bargain

On account of death of owner about 85 colonies of pure Italian bees, and a large amount of supplies for sale at 50 cents on a dollar.

D. F. KRECKLAN, 2423 Lyndale Avenue, North, Minneapolis, Minn.

is made of the best grade of white pine, accurately cut, so it will go together without the use of tools, except a hammer. Such is the kind of hives we make, and such is the kind you get when you buy from us. It is a cinch that we can make lower prices than you can get from any dealer, as you can save the middleman's profits when you buy direct from the manufacturer. We are manufacturers, and sell direct to the consumer. Send us a list of your wants, and let us make you prices. We guarantee every thing we sell to be satisfactory, or refund the money. We have large stocks of Dovetailed Hives, Sections, Shipping-cases, Foundation, Veils, Smokers, etc., on hand, and can ship promptly.

Minnesota Bee-supply Company

John Doll & Son, Proprietor

Power Building No. 20, Minneapolis, Minnesota

SPRAY PUMPS

"TAKE OFF YOUR HAT TO THE MYERS"



The Pump that pumps easy and throws a full flow. The cheapest pump is the best pump, that's a Myers. Pumps, Hay Tools & Barn Door Hangers. Send for catalog and prices.

F. E. Myers & Bro.,
Ashland, Ohio.



Deming's Sprayers

are the ideals for many thousand fruit growers. Get the best. Something for every purpose. Knapsack, Hand, Bucket, Barrel, Etc. Also Power Outfits. Every approved device for right working. Agitators, superior nozzles, etc. Send for free catalog. The Deming Co., 230 Depot St., Salem, O. Henlon & Hubbell, Western Arts, Chicago.



Something New in Honey-jars...

Cook's Square Jar combines a new feature that improves the package and reduces the cost, and is the best and cheapest 1-pound glass package made. Send for circular and full catalog of hives, bees, and useful implements. . .

J. H. M. COOK, 70 Cortlandt St., New York

The Oldest Supply-house in the East, and only Reliable goods sold. 10 cents brings sample jar by mail.

A Good Bee-hive!

*Special Notices
By Our Business Manager*

BEE-KEEPERS' FIELD DAY AT JENKINTOWN, PA., JUNE 26;
RATES FROM BOSTON AND PITTSBURG.

So great was the enthusiasm at the meeting held at the Jenkintown exhibition apiary last September, and so numerous were the calls from different parts of the United States, asking us when we would have another such meeting, that it has led us to plan for even a larger and more complete demonstration than was ever held in this country before. The kindergarten method of seeing as well as reading is up-to-date, and we now desire our readers to see these expert writers demonstrate what they say.

THE MEETING will be held at our exhibition apiary all day, commencing at 9:30 A. M., and continuing until 6 P. M., gathering under the trees, with the operators on elevated platforms; also several large circles roped off around the hives in different parts of the apiary, giving the opportunity for a large number of people to see the manipulations around each circle at one time. From the advices we have already received, there is prospect of a much larger attendance this year than ever before. We have also engaged a large hall in the town, within a few minutes' walk from the apiary, where we will meet should it rain, and also hold an evening meeting. Dr Lyon will exhibit here live bees on the screen, moving pictures, etc. The evening session will give a fuller time for discussion and review of the work of the day.

PLACE.—Jenkintown, Pa., a delightful suburb, ten miles from center of Philadelphia, and the home of Mr. Wm. A. Selser, is reached by the Baltimore & Ohio R. R. from the south; L. V. R. R. from the north; New Jersey Central R. R. from the east, and the P. & R. R. R. from local points. Parties coming through Philadelphia can take a Willow Grove trolley on either Eighth or Thirteenth Sts., and for 10c can ride direct to the field, getting out at the Jenkintown toll-gate.

ENTERTAINMENT.—Arrangements have been made by the Root Co. to provide, free of cost to the visitors, lunch at noon and evening; and for those coming from a distance, arrangements will be made at one of the good hotels for accommodations to stay over night, at the rate of \$1.50 to \$2.00 per day. Reduced rates on the railroad can be had by writing any of the undersigned. We are negotiating with the railroad to run a special train from New York city to the apiary, costing each one \$2.40 for the round trip, and a special train from Washington.

Mr. F. H. Farmer, 15 Chardon St., Boston, and Mr. Alvin Spindler, Park Bldg., Pittsburg, have kindly consented to complete arrangements for the party from Boston and Pittsburg. Please communicate with them for particulars and let them know of your intention of being present.

RATES FROM WASHINGTON.

The special train leaves Washington over Pennsylvania R. R., at 7 o'clock A.M., June 26, and will stop at Baltimore an hour later, at the Union Station only. If parties desiring to take this train from Washington or Baltimore will notify our Washington branch by the 23d, we can secure a marvelously low rate of \$3.90 to Philadelphia and return, provided we can get 100 beekeepers to take this train. The train returns at the close of the meeting, about 9:45 in the evening. A short trolley ride between the railroad station and the apiary on arriving at Philadelphia. This rate either from Washington or Baltimore can be secured only through our Washington branch. If the required amount is not secured, the next rate is the club rate of \$5.40 for the return trip. This will be a rare opportunity. Please be prompt in advising Mr. H. G. LaRue, our manager, 1100 Maryland Ave., Washington, D. C., of your intention of taking this train.

RATES FROM NEW YORK CITY.

Special train over the Jersey Central New York, will leave New York at 8 o'clock on the morning of the 26th, and a special low rate of \$2.40 has been secured direct to the apiary and return to New York, leaving the apiary about 9 P. M. This low rate is obtained only through our New York branch, and these special tickets are not for sale at any of the ticket offices. Please notify Mr. L. W. Boyden, care of The A. I. Root Co., 44 Vesey St., New York, as early as possible, of your intention of taking this train, and make arrangements with him.

Parties in Eastern New York and the New England States should join the New York delegation at New York city.

Tickets for the special trains at New York and Washington may be obtained up to 15 minutes before leaving time, at our offices, and thereafter of our managers at the Central of New Jersey depot in Jersey City, and the Pennsylvania depot in Washington. At Baltimore they may be obtained at the Union Station on arrival of the special train.

FROM WILLIAMSPORT.

Parties from this vicinity may obtain information and railroad cards for reduced rates of E. E. Pressler, Williamsport.

Further information and particulars will be given by writing to

The A. I. Root Co., Medina, O.

L. W. Boyden, 44 Vesey St., New York. Phone—543 Cortlandt.

H. G. LaRue, 1100 Maryland Ave., S. W., Washington, D. C. Phone—6021-M.

Wm. A. Selser, 10 Vine St., Philadelphia, Pa. Phone 2448-A Market. Jenkintown. Phone—19-A Ogontz.

Gentlemen:—

This will advise you of my intention to be present at the Bee-keepers' Field Day, June 26.

NAME _____

ADDRESS _____

If others attend with you, state number ().

(The above, if filled out and sent us at once, will greatly assist us in laying our plans for your entertainment.)

Special Notices by A. I. Root.

FIRST NATIONAL CO-OPERATIVE SOCIETY
(THE CASH BUYERS' UNION).

We clip the following from the *Rural New-Yorker*:

"The plausible scheme of the Cash Buyers' Union of Chicago was to sell small lots of their stock to farmers in order to make them partners in the company. These stockholders were to have 10 per cent discount on every thing they bought, and big dividends on the stock. This was called the co-operative plan. The farmers of the Middle and Western States bought and paid for over a million dollars' worth of stock, and bought several hundred thousand dollars' worth of goods from the concern. Now it has failed, and there is about \$40 in the treasury and not enough assets to pay the debts of the concern. The farmers lose their million. Other co-operative concerns are now springing up on the same basis. The plan seems to appeal to some promoters. The result of the farmers' experience with the Chicago concern should be your guide."

Mr. Calvert informs me that some of our subscribers have lost money by investing in this same Cash Buyers' Union; and he says further that, while no one has complained in a way that would seem to attach blame to us, several have said they probably would not have invested had they not seen their advertisement in GLEANINGS. For some time we accepted their advertisements and bought most of our groceries of them, which were quite satisfactory. Later on I felt uneasy about them, and finally objected to their methods of wanting to sell stock, etc. They repeatedly tried to get large advertisements in GLEANINGS. At one time they wanted 20 pages. The matter was referred to me, and I replied in substance, "We do not want 20 pages of advertising from anybody in our journal, no matter how good the parties are, and no matter how much money they offer." Our advertising pages, as well as every other page in our journal, are for the benefit of our subscribers. We consider them our neighbors—every one of them; and we not only individually, but as a firm, try to "love our neighbors as ourselves." At the time we did the advertising for them they were quoted well, and little or no complaint was made in regard to their methods of doing business. Their groceries were of good quality, prices unusually low, and there was no good reason for refusing their advertisement until they began to urge farmers and others to go in with them and "get rich quick," etc. Since this matter has come up I have gone over our advertising pages very thoroughly for the past year; and I am glad to see such a clean lot of people offering only such goods as (with very few exceptions) bee-keepers naturally want to buy.

Here is something more which the *Rural New-Yorker* quotes from a western paper:

"On February 26, Judge Bethea, of the United States Supreme Court, appointed Edwin C. Day receiver for Cash Buyers' Union First National Co-operative Society, Chicago, on the charge that \$1,000,000 in stock has been sold to farmers throughout the country, and that there is a cash balance of only \$100 on hand. Postoffice inspectors state that the company owes \$250,000 on merchandise accounts, and that there was no credit on hand, and nothing coming in."

The *Rural* adds:

The farm papers which helped this concern sell \$1,000,000 of its stocks to their readers by carrying its advertisements will not be likely to publish notice of the failure. The *Rural New-Yorker* has persistently refused the advertising, and, while we could not get definite information about them to justify us in publishing them as frauds, the schemes were such that no one familiar with them could be in doubt of the ultimate result. We had several private inquiries about the concern during the past year from farmers who believe in looking into things before parting with their money, and in all such cases we advised leaving them alone.

JAPANESE, SILVERHULL, OR COMMON GRAY BUCKWHEAT
—WHICH IS BEST?

In our last issue, the paragraph below from the Cornell station was omitted for want of room:

"Each of these varieties has produced the largest yield in certain tests. It seems that there is adaptation of variety to soil or climate, or, perhaps, to weather conditions, that has not yet been worked out, that produces these contradictory results. However, the yielding quality of the Japanese variety is usually conceded to be superior to that of the others."

The above explains why it is that some buckwheat-growers put the Japanese away above the older kinds, while others claim it is inferior, both for honey and flour, to the silverhull or even the common buckwheat. Like many other things, certain kinds seem to be particularly suited for certain localities. Therefore it behooves every buckwheat-grower to try all three kinds on his lands; and so with almost any other grain, fruits, etc. Decide which is best for yourself by practical test of the different varieties.

BUCKWHEAT FOR SOWING, BOTH JAPANESE AND SILVER-HULL.

Just now we have a very good stock on hand of both the above kinds. The silverhull has, of late, given the best results in our locality. As mentioned elsewhere, I think it would be a very good plan for you to try both kinds. Every bee-keeper who does general farming ought to grow buckwheat, because he thus kills two birds with one stone—yes, sometimes three of them. He gets some honey, more or less grain, and clears his ground of foul weeds.

The present prices of either kind are, two-bushel bag, \$2.25; bushel, \$1.25; half bushel, 65 cts.; peck, 35.

Be careful about ordering buckwheat to go long distances by express, as the charges that way are frequently more than its value. Better get it by freight, and order a little while before you need it. Better still, have it come with other goods to save transportation. Pound, by mail, prepaid, 15 cts.; trial package (4 oz.) by mail, 5 cents.

In Northern Michigan buckwheat is sown in June; but here in Ohio it is mostly put in in July. Some very good crops have been secured when sown the first of August. Where sown so late you may get blossoms for honey, but you will be liable to lose your grain by frost.

"OUR FARMING," BY T. B. TERRY.

We have been having for years a big call for this excellent book, and of late the demand seems to be increasing. Well, just now the publishers have gotten out an edition in paper covers that we will let you have for 40 cents. If wanted by mail, add 6 cents for postage. The cloth-bound book is 75 cents; postage 10 cents extra. Besides the above books there is a new book by Terry, just out, which is a collection of his most valuable articles for several years past, taken from the *Philadelphia Practical Farmer*. I do not know of any better book for rural people, and I might almost say anybody else, for the price, than this, entitled "What I Do, See, and Hear." In a hasty looking through its pages, almost every item is of intense interest to me. In fact, I hate to lay it down. Very likely some allowance should be made because T. B. Terry is a particular friend of mine; but I do think he has a remarkable faculty for making every sentence he writes of real practical value to every man, woman, and child. The book (320 pages) contains his health notes as well as items about farming, gardening, fruit-growing, and almost every thing around or about the home. I should be very glad to see the book have a large sale, because I am sure it will do a world of good. Price in cloth covers, 40 cents. Postage extra, 8 cents.

----"If Goods are Wanted Quick, Send to Pouder."----

Established 1889.

BEE-KEEPERS' SUPPLIES

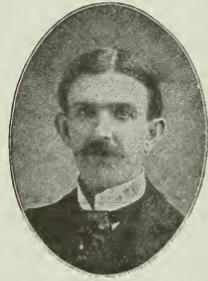
Distributor of Root's goods from the best shipping-point in the Country. My prices are at all times identical with those of the A. I. Root Company, and I can save you money by way of transportation charges.

Dovetailed Hives, Section Honey-boxes, Weed-Process Comb Foundation, Honey and Wax Extractors, Bee-smokers,

Bee-veils, Pouder Honey-jars, and, in fact,

EVERYTHING USED BY BEE-KEEPERS.

Headquarters for the Danzenbaker Hive.



New Metal-spaced Hoffman Frames are Here in Stock

Conversation with Wilson

"Hallo, Mr. Wilson! Have you been to dinner?"

"Yes, thank you, Mr. Smith; just got up from the table, and thought I'd come over for a little talk while the horses are feeding. Say, Mr. Smith, I am going to have a big crop of honey, and I have a notion to send it to Pouder as soon as I take it off the hives. What do you think about it?"

"Well, Pouder will buy your honey if you wish to ship it to Indianapolis; but I believe that you can establish a home trade for every pound that you can produce. I get 20 cents for every section of my comb honey, and 15 cents a pound for all of my extracted. Of course, where my neighbors want a little for sickness I never charge any thing; but do you know, Mr. Wilson, that I do not have enough to go around, and I had to send to Pouder myself for several cans to supply my home trade? It is a long time till honey comes again, and you will be surprised how they will come for miles when they once learn that you have it on hand."

"I am aware that the market is now almost bare of honey; but don't you think there will be a big crop of honey this year? It looks as

if California would have a big crop of honey this year, and won't that affect the price of honey here? The other evening Bob was reading in the Indianapolis *News* about one of those big prizefights being postponed on account of a down-pour of rain. Bob will read all that stuff in spite of all I can say. I just thought that, when California has those heavy rains, it means lots of honey."

"I'll tell you about that, Mr. Wilson. You and I need never fear any thing about any overproduction. This is a great country, and we shall have a demand that exceeds our supply every season. Haven't heard of any one having any more corn than he could dispose of, have you? Another thing, considering the modern hives and equipment that we now have, we could even afford to reduce the price on honey, for we get twice as much honey now as we did ten years ago from a single hive, and at the same time honey is growing in better demand every day."

"I guess you are right about this matter. I must be going. Let me know when you are ready to send your order to Pouder again, and I will have some brood foundation and some of those new metal-spaced Hoffman frames included with your order."

BEESWAX WANTED.

I pay highest market price for beeswax, delivered here, at any time, cash or trade. Make small shipments by express; large shipments by freight; always be sure to attach name to package.

CATALOG FREE

WALTER S. POUDER,

513-515 Massachusetts Ave.,

INDIANAPOLIS, IND.

Bee-keepers!

Are you aware that we are manufacturers, and can supply you with every thing you need in the apiary?

Good Goods, Low Prices and Prompt Shipments

are the **POINTS** in our favor. Our customers say so. Convince yourself by sending us your order. Ask for our free Illustrated Catalog and Price List.

Page & Lyon Mfg. Co., New London, Wis.

Montana, Minnesota, Dakota, and Western Wisconsin Bee-keepers!

You can save freight by ordering of the St. Paul Branch. We have a complete stock of bee-keepers' supplies. Write at once for catalog and obtain our early-order discounts.

BEES AND QUEENS—Orders booked now for spring delivery.

HONEY AND WAX—We handle honey and wax. Write for particulars.

The A. I. Root Co.

Northwestern Branch,
1024 Mississippi Street,
J. C. Acklin, Mgr., St. Paul, Minn.

DO YOU KNOW

That the sale of Dittmer's Foundation has increased so much that we were forced to double our melting capacity in order to fill orders promptly?

There is a Reason for This

It is because Dittmer's Foundation is tough, clear, and transparent, and has the natural color of beeswax.

AGENTS FOR DITTMER'S FOUNDATION:

W. D. Soper Jackson, Mich.
Bee and Honey Co. Beeville, Texas
E. H. Taylor ... Welwyn Sta., Herts, Eng.
E. Grainger & Co. Toronto, Ont., Can.

Our warehouse is well stocked with all kinds of bee-keepers' supplies.
Beeswax always wanted.

Gus Dittmer, Augusta, Wis.

BEE-SUPPLIES

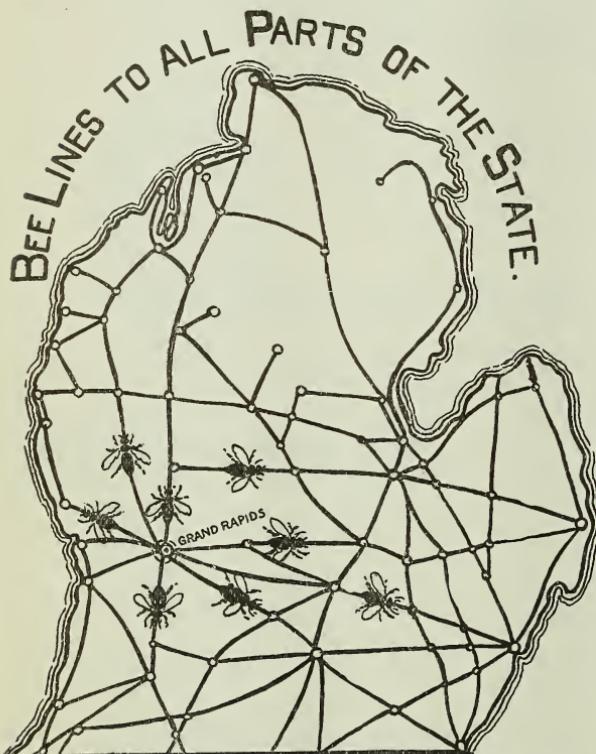
We manufacture every thing needed in the apiary, and carry a large stock and great variety. We assure you the best goods at LOWEST PRICES, and our excellent freight facilities enable us to make prompt shipment over fifteen different roads, thereby saving you excessive freight charges as well as time and worry in having goods transferred and damaged. We make the Alternating, Massie, Langstroth, and the Dovetail hive.

Our prices are very reasonable; and, to convince you of such, we will mail you our free illustrated and descriptive catalog and price list upon request. We want every bee-keeper to have our catalog. SPECIAL DISCOUNTS now. Write to-day. Address

Kretchmer Mfg. Co., Council Bluffs, Iowa.

Muscatine Produce Co., Muscatine, Iowa.
Trester Supply Co., Lincoln, Nebr.

Shugart-Ouran Seed Co., Council Bluffs, Iowa.
T. B. Vallette & Son, Salina, Kansas.



Over a
**Million Lewis
Sections**

in stock since Jan. 1st, 1906.
Dadant's Foundation and all
other goods in proportion. Im-
mediate shipments.

~~~~~  
Get your goods in a hurry—  
before the ink on your order  
gets dry—by sending to

**A. G. WOODMAN CO.  
GRAND RAPIDS, MICH.**

DAILY EXPRESS TRAINS:

|                            |    |
|----------------------------|----|
| Adams Express.....         | 12 |
| American Express.....      | 9  |
| United States Express..... | 22 |
| National Express .....     | 12 |

DAILY FREIGHT TRAINS:

|                         |               |
|-------------------------|---------------|
| P. M. System.....       | 20 and extras |
| M. C. System.....       | 6             |
| Gd. Trunk System...10   | "             |
| L. S. & M. S. System..6 | "             |
| G. R. & I. System ..12  | "             |
| G. R., G. H., & M....10 | "             |
| G. R., H., & L. M....10 | "             |

## Bee-keepers' Supplies!

Lewis' famous "Beeware," Root's Smokers and Extractors; Dadant's Comb Foundation, etc.; Queens and Nuclei in Season, Large and Complete Stock; Prompt Service. We will meet all competitors who handle first-class goods. Catalog with practical hints free.

### "Mandy Lee" Incubators and Brooders!

Whether you are experienced in artificial incubation or not, these incubators will give you gratifying results. The "Mandy Lee" brooder is the only brooder made which applies direct contact heat to the little chicks' backs. Our free incubator catalog describes them. Prompt shipments.

**C. M. Scott & Co., Indianapolis, Indiana**  
1004 East Washington Street

Established 1881

YES!

Same Place 1906

# THIS IS THE MAN WHO HAS HANDLED ROOT'S GOODS ALL THESE YEARS

and is now selling at wholesale and retail at Root's catalog prices. He has carloads of the finest sections, of all kinds and sizes; the Danzenbaker hive, the best single-walled comb-honey hive in use; all kinds of single-walled hives shown in catalog, and supers that match; the Hilton double-walled hive, of which more are used in Michigan than any other. It has stood the test for thirty years. We can't name them all, but send for his 36-page illustrated catalog, and that will tell it all and give prices. Cash or goods in exchange for beeswax at all times of the year.

**Geo. E. Hilton, - Fremont, Mich.**

## Increased Business Compels Larger Space!

So we have just doubled our capacity in the building at 141 Ontario Street, where we carry a full line of

### Poultry-supplies and Lewis' Popular Beeware

Catalogs on application. ORDERS FILLED PROMPTLY AT FACTORY PRICES.  
BEESWAX WANTED.—28c cash or 30c in trade.

ITALIAN BEES in modern hives with select queens for sale; also pure Italian queens.

### York Honey and Bee Supply Company Not Inc.

H. M. Arnd, Mgr.

141 Ontario Street, Chicago, Ill.

Phone North 1559

BINGHAM  
Original  
Direct Draft  
CLEAN  
Bee Smokers



Pat'd 1875, '82, '92 & 1903

### Pretty Recognition

A lady to whom I sent a Smoke Engine to order per mail sent this delicate recognition, "I am pleased," and signed her name.

We have made hundreds of thousands of smokers in the last twenty-eight years. They always please and last; don't spit fire; don't go out; don't daub themselves all over. We are the most extensive exclusively bee-smoker makers in the world.

**T. F. Bingham - Farwell, Mich.**

Chico, California, October 28th, 1905.

Dear Mr. Bingham:—Enclosed find money-order for a honey-knife and smoker. I can't do business without a Bingham Smoke Engine.

J. M. RANKIN.

### If You Live

in Central or Southeastern Ohio or Western West Virginia you can save freight by ordering Root's bee-supplies from me.

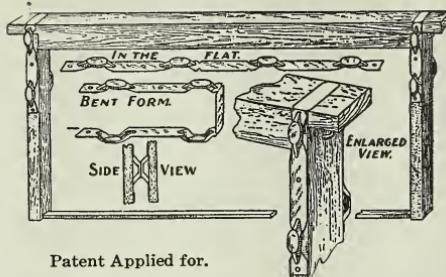
**E. W. Peirce, Zanesville, Ohio**

### Marshfield - Hives - and - Sections

kept in stock; none better. DITTMER'S foundation and all kinds of bee-keepers' supplies sold right. Thousands of shipping cases, 24-pound, 13 cts.; fancy white basswood, 16 cts., HONEY and BEESWAX wanted. Send for free list, and save 20 per cent on your order.

**W. D. Soper, Route 3, Jackson, Michigan**

# Metal-spaced Hoffman Frame IN GREAT DEMAND.



Patent Applied for.

*Has come to stay. Can be used interchangeably with regular Hoffman frames. Has all the advantages of the regular Hoffman. Is not affected by propolis. Can be handled without pry or screwdriver. Has no rights or lefts, and, therefore, can not be put up wrong. See full description in 1906 GLEANINGS, page 16.*

**PRICES.**—Metal-spaced Hoffman frames—100, put up, \$4.50. In flat—10, 35¢; 100, \$3.00; 500, \$14.00. Metal spacers only—30¢ per 100; \$2.50 per 1000. Hives with metal-spaced frames, 5¢ extra each body, 8 or 10 frame, put up or in the flat.

The A. I. Root, Company, Medina, Ohio.

## PENNSYLVANIA

Ours is the largest bee-supply house in the western half of the State. Every thing which the bee-keeper will need is in stock awaiting your order.

## ROOT'S GOODS AT ROOT'S PRICES

You can save time and expense by ordering from us.

Best shipping facilities.

Complete stock.

Do not put off ordering today what you will urgently need a little later on in the season.

Frank W. Prothero

Successor to Prothero & Arnold

Dubois, Clearfield Co., Pennsylvania

## WISCONSIN - BASSWOOD

### FOR SECTIONS

We make them and the very best of Dovetailed Hives, Shipping-cases, and a full line of Bee-keepers' Supplies always on hand. We make very prompt shipments. Let us hear from you.

Marshfield Manufacturing Company  
Marshfield, Wisconsin

## I. J. STRINGHAM OF 105 PARK PLACE New York

furnishes every thing a bee-keeper uses. Strong colony of bees, with tested Italian queen, in Dev'd hive complete, \$8.00; in a chaff hive, \$9.50. Three-frame nucleus, with Italian queen, \$4.00. Silk-faced bee-veil, 40 cts. postpaid. Italian queens, 85 cts. Catalog of bee-supplies free.

Apiaries, Glen Cove, Long Island.

# INCREASE.

Don't depend entirely upon swarming for your increase. It's too slow and uncertain. But how increase? Swarthmore tells of a way in his delightful little book entitled "Increase"—a natural way, simple and safe, no labor, little trouble. Colonies formed on this plan will work like prime swarms, and store a surplus. No up-to-date bee-keeper can afford not to have a copy of this work. Price 25 cts. a copy postpaid.

**SIMPLIFIED QUEEN-REARING.**—A revised edition of this book just out. It tells the honey producer how to rear queens by the very simplest method ever published. Good queens for little money and little trouble, in just an effective and economical plan for the bee-keeper who works for profit. Price 25 cts. a copy, postpaid.

**CELL-GETTING.**—The plan that has revolutionized queen-rearing throughout the world. The entire process is fully explained and illustrated by photos from actual life, and vividly showing all the labor-saving points in the best cup system ever invented. Price, postpaid, 50 cents.

## Swarthmore Queen-Rearing Tools.

The simplicity of these devices places the art of queen-rearing in the hands of the average bee-keeper. Every honey-producer can be his own queen-rearer. Full directions go with each outfit. Here is a chance not only to rear your own queen but for your neighbors at a profit.

### Prices of Complete Outfits:

#### Outfit No. 1--Experimental

POSTPAID, \$1.50

1 Cell-bar, 1 Holding-frame,  
16 Waxed Flange Cups, 12 Transfer-cages.

#### Outfit No. 2--Amateur

POSTPAID, \$3.50

2 Cell-bars, 1 Holding-frame,  
35 Waxed Flange Cups, 18 Transfer-cages,  
1 Needle, 1 Cell-stick.

#### Outfit No. 3--Professional

BY FREIGHT OR EXPRESS, \$7.50

2 Blank bars, 2 Cell-bars,  
3 Holding-frames, 1 Incubating-cage,  
1 Cage-pocket, 1 Grace Cell-compressor,  
1 Grafting-plug, 100 Flange Cups,  
2 Double mating-boxes, 2 Swarth. nursery-cages,  
1 Bar-holder, 24 Transfer-cages,  
1 Swarm-box with lid, 1 Needle, 1 Stick.

|                                               | Prices of Separate parts: | post.<br>extra |
|-----------------------------------------------|---------------------------|----------------|
| Bar-holder .....                              | \$ .10                    | .04            |
| Blank Bar .....                               | .05                       | .04            |
| Bottle Feeder .....                           | .10                       | .05            |
| Bulb Filler and Feeder .....                  | .75                       | .08            |
| Breeding-queen Hive .....                     | 1.00                      |                |
| 16-hole Cell-bar .....                        | .10                       | .02            |
| Cage-pocket .....                             | .25                       | .09            |
| Flange-cups, unwaxed, 1c each; per 100..      | .75                       | .09            |
| Flange-cups, waxed, 2c each; per 100..        | 1.75                      | .14            |
| Grace Cell-compressor, each .....             | 1.75                      | .14            |
| Grafting-needle, each .....                   | .15                       | .01            |
| Grafting-plug, each .....                     | .10                       | .01            |
| Grafting-stick, each .....                    | .10                       | .01            |
| Holding-frame, each .....                     | .10                       | .05            |
| Incubating-cage, each .....                   | .35                       | .07            |
| Double Mating-boxes, complete, \$1.00; 10     | 7.50                      |                |
| Nursery-cages, complete, waxed cell-cup ..... | .35                       | .05            |
| Nursery-cages, no cups .....                  | .25                       | .04            |
| Swarm-box, with lid .....                     | 1.00                      |                |
| Swarm-box, lid only .....                     | .25                       |                |
| Trap-box .....                                | .50                       |                |
| T Stands, each .....                          | .10                       | .06            |
| Transfer-cages .....                          | .10                       | .02            |

# The A. I. ROOT CO.

AT ALL BRANCH HOUSES.  
FOR SALE BY ALL DEALERS IN BEE-KEEPERS' SUPPLIES.

# QUEENS

By Return Mail at the Following Prices for the Balance of this Season. Golden or Leather-colored Italian.

Our folks say that your queens are extra fine.

The A. I. Root Co., Medina, Ohio

We have good reports from your stock from time to time. George W. York & Co., Chicago, Ill.

On every hand I hear good words of Quirin's queens. B. S. K. Bennett, Los Angeles, Cal.

Your queens did finely. It was one I purchased last year that gave me over 600 pounds of honey. J. L. Gandy, Humboldt, Neb.

The breeder is surely a very fine one; her daughters do grandly. Campbell & West, Hartstown, Pa.

I had a queen of you last year which produced bees that beat anything ever seen in this part of the country. E. L. Messenger, New Haven, Conn.

The nuclei you sent J. A. Adams did just splendidly. Each colony stored at least 75 pounds of honey.

F. P. Merritt, 13 Breckenridge St., Lexington, Ky.

A few years ago I bought a queen from you which proved to be the best I had for years. H. C. Shirivay,

Cashier of Liberty Bank, Liberty, S. C.

I have had the pleasure of seeing the results of your queens at Mr. George W. Stanley's apiary, at Scotchtown, Ky., and that is why I am ordering this half dozen. C. W. Brenner, Newburg, Ind.

I bought a queen from a neighbor last year who said he got her from you. She made me 193 sections of honey after July 4th—the best my other queens did was 64 sections. C. E. Woodington, St. Anne, Ill.

With great respect I write to you in regard to your dealing and queens. If you want any references you can refer to me, as I can't recommend you too highly. Your queens are the best I ever saw. I have one hive of bees among my 45 colonies containing a queen from you that \$50.00 will not buy.

Morris Coon, Route 2, Locke, N. Y.

The two-frame nucleus you sent me was put in a hive May 25th. In July I brushed a swarm; had a swarm in August, and took off 75 boxes of honey. I consider this a wonderful record. I had four nuclei from different parts of the country, and yours was far superior to any of them. They are very gentle, easy to handle, hustlers to work. All bees and queens needed by me will hereafter come from Quirin-the-queen-breeder, Bellevue, O.

S. A. Peck, Box 124, Northumberland, Pa.

|                                 | 1    | 6      | 12      |
|---------------------------------|------|--------|---------|
| Select queens.....              | 75   | \$4 00 | \$ 7 00 |
| Tested queens.....              | 1 00 | 5 00   | 9 00    |
| Select tested queens.....       | 1 50 | 8 00   | 15 00   |
| Breeders.....                   | 3 00 | 15 00  |         |
| Straight five-band breeders.... | 5 00 |        |         |

Safe delivery and satisfaction guaranteed of all queens. Any queen not satisfactory may be returned any time inside of sixty days and another will be sent gratis.

Address all Orders to

**Quirin-the-Queen-Breeder**  
Bellevue, Ohio.

**CARNIOLAN and ITALIAN QUEENS!**

Ready to mail by April 15th. Quality of the highest, prices the lowest. Write me.

**Grant Anderson - Sabinal, Texas**

**ITALIAN QUEENS AND GLEANINGS.**

For \$1.10 I will send GLEANINGS one year, new or renewal, and give one of my choice untested Red-clover Queens. Queens sent after May 1st.

**W. T. CRAWFORD, Hineston, La.**

# Continuous Selection Extra Honey Queens

of queens best fitted for the man who is working for honey is what has brought the

to the present high standard they now occupy. Although these queens are GOOD I am always trying to breed a better one.

| Prices          |
|-----------------|
| One.....\$1.00  |
| Six.....\$5.00  |
| Twelve ..\$9.00 |

**Francis J. Colahan**  
**Bernardo, San Diego Co., Calif.**

# COLLINGDALE APIARY

J. R. Rambo, Collingdale, Delaware Co., Penn.

Breeder of Caucasian and Golden Italian queens; Italians bred from stock received from Swarthmore; Caucasians bred from an imported queen. Queens reared and mated in separate yards, six miles apart. Satisfaction and safe arrival guaranteed. Prices furnished on application. I am booking orders now for the coming season, and will fill same in rotation as received.

# Yellow from Tip to Tip !!!

My Adel bees and queens are yellow all over. Every queen a breeder, and guaranteed to produce all golden queens and bees; non-swarmers, gentle, great hustlers; \$1 each.

Catalog ready.

H. Alley, Wenham, Mass.

# Queens - Italian - Queens

and bees from Root's Red-clover stock and Golden Italian queens. Better than ever.

Untested.....60c each; six, \$3.50

Selected untested.....75c " 4.00

Tested.....\$1.00 " " 5.00

Selected tested.....1.25 "

Two-frame nuclei with untested queen..2.00

Orders filled in rotation. Send orders to

**E. A. Simmons, Greenville, Ala.**

# Tennessee-bred Queens

From Extra Select Mothers

Three-band from dark leather imported; Moore's long tongue or my own; Golden from Laws, Doolittle's, or my own; Caucasians and Carniolans from direct imported. No disease. Contracts with dealers a specialty. Apiaries from 3½ to 7 miles apart. Write name on postal, and get circular and what others say.

**JOHN M. DAVIS**  
**Spring Hill, Tennessee, U. S. A.**

# RED-CLOVER QUEENS AND ITALIANS BETTER THAN EVER.

Average queen, 75 cts. Untested, \$1.00; tested, \$1.25. Guaranteed to work red clover.

"Our red-clover fields are swarming with your bees," says G. W. Slaybaugh, York Springs, Pa.

Laying queens ready by return mail. Guaranteed to work red clover as well as white.

Send for my new circular; it's free. Root's Bee Supplies for sale.

**G. ROUTZAHN, Biglerville, Pa.**



# CARNIOLANS our SPECIALTY

**W**E HAVE bred this race of bees for twenty years, and find they are among the gentlest bees known. Very hardy and prolific, and the best of honey-gatherers, and their combs are of snowy whiteness. We are wintering 50 select imported and 200 best select tested Carniolan queens for early orders.

Also breeders of Golden and Leather Italians. One untested queen, \$1.00; six for \$5.00; twelve for \$9.00. Tested, \$1.50. Best breeder, \$3.00. Best imported, \$5.00. Special prices on large orders. No foul brood here. Bees and queens guaranteed to arrive in good condition in U. S. or Canada. Descriptive list free.

**F. A. Lockhart & Co.,**

## "\$100 Offered for a Carniolan Queen"

We will pay the above sum to any queen-breeder or bee-keeper who can furnish us with a breeding Carniolan queen that is not over one year old, and can prove that she is in no way related to our strain of Carniolans. This queen must be in color a light bronze, large and prolific; her bees very gentle, and every one to have silver-gray bands. Our breeding Carniolans are as described above, and we are willing to pay a good price for a queen that will produce stock in every way equal to our own, and not in any way related.

**Lake George, New York**

## CAUCASIAN QUEENS.

Try one or more of my gentle Caucasian queens, said to be the gentlest race of bees in the world, having a sting. The demand for these queens is good; in fact, orders are rolling in now. All orders filled in rotation, as received. Special prices on large orders. Untested, \$1.25 each; warranted tested, \$3.00 each. Ready in June. I control all bees within three miles of my apiary, and can promise pure stock. A few choice nuclei can be furnished with a fine queen, when wanted.

Money-order office, Olive Branch, Mississippi.

## Superior Queens ! ! !

—Before June 15— —After June 15—

Italian and Carniolan

|                    |                        |                      |
|--------------------|------------------------|----------------------|
| Untested.....      | 75c; \$8.00 per doz.   | 60c; \$6.50 per doz. |
| Tested.....        | \$1.00; 11.00 per doz. | 75c; 8.00 per doz.   |
| Select Tested..... | 1.25; 12.00 per doz.   | 1.00; 11.00 per doz. |

Caucasian

|                    |                          |                      |
|--------------------|--------------------------|----------------------|
| Untested.....      | \$1.00; \$11.00 per doz. | 75c; \$8.00 per doz. |
| Tested.....        | 1.50; 16.00 per doz.     | 1.00; 12.00 per doz. |
| Select Tested..... | 2.00; 20.00 per doz.     | 1.25; 12.00 per doz. |

Write me a postal card for my circular.

Chas. Koeppen, Fredericksburg, Virginia

## DOOLITTLE & CLARK

are booking orders for their famous Italian queens. Now is the time to order breeders. Send for circular.

| Grade.                     | One    | Three  | Twelve |
|----------------------------|--------|--------|--------|
| Untested.....              | \$1.00 | \$2.50 | \$9.00 |
| Select.....                | 1.50   | 4.00   | 14.00  |
| Tested (1905 rearing)..... | 2.50   |        |        |
| Select Breeding.....       |        | 5.00   |        |
| Extra Select Breeding..... | 10.00  |        |        |
| Two-frame Nuclei.....      | 2.50   | 7.00   | 25.00  |

### DOOLITTLE & CLARK

Borodino, Onondaga Co., New York

## Every Bee - Keeper Knows the Worth of a Good Queen

Knows the worth of a good strain of bees, and also knows how worthless is a poor queen and inferior bees. Try our strain of three-banded Italians. They are bred for business, and will not disappoint you. Home-bred and imported mothers. Tested, \$1.00 each; untested, 75 cts. each; \$8.00 per dozen. Send for price list.

**J. W. K. SHAW & CO.**

Loreauville, : : : : Louisiana

**Queens !** Balance of this season at 20 per cent discount; three or five banded; untested only.

R. O. COX, Rt. 4, Greenville, Ala.

## Quality Queens

Are the Best Italians yet.

Send for circular.

**H. H. JEPSON,**  
182 Friend St., - Boston, Mass.

## QUEENS DIRECT FROM ITALY

Fine, reliable. English price list sent on application. Beautiful results obtained last year. OUR MOTTO—“Whatsoever ye would that men should do to you, do ye even so to them.”

MALAN BROTHERS, Luserna, San Giovanni, Italy.

## QUEENS OF MOORE'S - STRAIN - OF - ITALIANS

produce workers that fill the supers and are not inclined to swarm. . . .

Stewart Smillie, Bluevale, Ont., Can., says:

“They fill the supers and are not so much inclined to swarm as others. I have been buying queens for fifteen years, and your stock was the only one that was any good to gather honey.”

Untested queens, \$1.00 each; six, \$5.00; dozen, \$9.00.

Select untested, \$1.25 each; six, \$6.00; dozen, \$11.00.

Safe arrival and satisfaction guaranteed.

**J. P. MOORE, Morgan, Pendleton Co., Ky.**

## Red-clover Italian Queens Exclusively !!

No better honey gatherers in existence. Select untested, 75c; tested, \$1.00; three-frame nucleus with queen, \$2.00. To prove the quality of my stock I will send two trial queens for a \$1 bill. F. M. Mayberry, Obelisk, Pa.

## MOORE'S LONG-TONGUES and GOLDENS

Select untested queens, \$1.00; six, \$5.00; twelve, \$9.00. Tested, \$1.50; six, \$8.00. Best breeders, \$3.50. Safe arrival guaranteed.

**W. H. Rails, - - - Orange, Calif.**

## Red-clover Queens from Westwood Apiary

will convince you of their superiority over all others. One, two, and three frame nuclei a specialty; also full colonies. Price list sent on application.

Henry Shaffer . . . . . Westwood, Ohio

## Now is the Time to Plan

for the coming season, and you are bound to need queens to replace those that are old and worn out. Many of my customers have written me that the queens bought of me were the only ones that gave any surplus the past poor season. You had better plan to supply yourself with a lot of those fine young queens from the Laws aparies, and double your crop of honey.

### I AM BREEDING THE LEATHER AND GOLDEN ITALIANS,

also the Holy Lands. So many calls have come for Carniolans that I have added this splendid race to my list, and there is no doubt that the Carniolan, or the Carni-Italian cross, will cap their honey whiter than any of the Eastern races. I am not only prepared to furnish you with the best bees and queens in existence, but in any quantities, large or small, from one to a thousand queens. Nuclei and full colonies in season. I also offer another car of bees the coming season.

**PRICES:** Queens, each, \$1.00; six for \$5.00. Breeders, each, \$3.00. Write for quantity lots.

**W. H. LAWS, BEEVILLE, BEE CO., TEXAS.**

## Caucasian - and - Italian - Queens from California

Prices: CAUCASIAN—One tested, \$3.00; one best breeding, \$6.00; one imported from Caucasus, \$7.00. ITALIAN—One untested, \$1.00, six for \$5.50, 12 for \$10.00; one tested, \$1.50; one best breeding, \$5.00. Caucasians bred from the best imported breeding queens. Italians bred from breeding queens we procure from principal breeders of this country who have the best honey-gatherers. Nuclei and full colonies of bees. Send for particulars, and see our adv. in GLEANINGS, February 1st.

**A. E. Titoff, Ioamosa, San Bernardino Co., California**

## CAUCASIAN QUEENS!

For beginners, the timid, and the city bee-keeper Not stingless, but gentle. With this race many will master the art of handling bees. I breed HIGH-GRADE ITALIAN QUEENS also. The demand for these queens is great; the supply is limited. Write for particulars today. Address

**Robert B. McCain, Yorkville, Ills. R. F. D.**

## Rose - Lawn - Queens \$25.00 IN PRIZES.

For the largest number of sections No. 1 comb honey produced by a colony headed by one of our "Pure Gold" queens before September 15th, 1906, \$10.00 cash. For the second largest, \$7.50 cash. For the third largest, \$5.00 cash. For the fourth largest, \$2.50 cash. In addition to the above offer we will pay 20 cts. per pound for all prize honey for exhibition purposes.

Select untested "Pure Gold" queens, \$1.00. Select tested "Pure Gold" queens, \$2.00. Select breeding queens, \$6.00. Our very finest extra select tested breeders, in 2-fr. nucleus, f. o. b., Lincoln, Neb., \$10.00. We ship in June, 200 "Pure Gold" queens to one customer.

Caucasians      Carniolans      Red Clover Italians  
Rose Lawn Apiaries, Station C, Lincoln, Nebr.



## Fine Italian Queens

by Return Mail

Tested (or warranted tested) \$1.00 each; untested, 75 cts. each. Four or more queens, 3 per cent. discount; 10 or more, 5 per cent. No disease. Safe arrival of all queens and quality of bees and queens guaranteed. If any prove unsatisfactory I will gladly replace.

**Chas. M. Darrow, rt. 1, Milo, Mo.**

## From Long-tongued Imported Italians.

Untested, 75c; \$7.50 per dozen. Tested, \$1.25; \$12.00 per dozen. Breeders, \$2.00 to \$3.00. Postal orders drawn on Decatur, Michigan.

**E. E. MOTT, Glenwood, Mich.**

## The Best Stock

Nice three-banded Italians that are guaranteed to please, or money refunded. The Robey queens now go to nearly all parts of the globe. They are being used by many of the largest honey-producers of this and other countries, who pronounce them to be very superior strain of bees. I have spent 21 years in building up this strain of bees. Warranted purely mated, in any quantity, 60 cts. each; selected warranted, 75 cts. each.

**L. H. Robey, Worthington, W. Va.**

## Untested Queens!

**Golden Italian**

75 cts. each; six for \$4.00; an extra fine one for \$1.00. Warranted purely mated and good queens. . . .

**J. B. Case, Port Orange, Fla.**

1906 Italian and Caucasian Queens. Price list now ready. Write **E. E. LAWRENCE, Doniphan, Mo.**

## Superior Stock

I make a specialty of long-tongue Italian, Carniolan, and Caucasian,

Rearing only from best stock obtainable. My Italian queens are unexcelled; my Carniolans and Caucasians from best imported queens. All races bred in separate yards to insure purity. A postal will bring my price list for 1906.

**CHARLES KOEPHEN**  
Fredericksburg, Va.

# BEES and QUEENS

BY RETURN MAIL.

The Three-banded  
Long-tongued Strain  
of Italians.

We are breeding exclusively the above strain of bees, as from years of experience we consider them the best all-round bees that can be had. We have been making, from time to time, very careful selections for the following

## Superior Qualities.

Honey-gathering, size of bees, non-swarming, docility, uniform markings.

Our selection of bees awarded diploma at the PAN-AMERICAN EXPOSITION for being the best bees there. And we guarantee them the equal of any bees anywhere at any price

## Quality Our Motto.

1300 colonies to select from.

|                                    |                     |       |
|------------------------------------|---------------------|-------|
| Untested queens.....               | 75c; 6, \$4.25; 12, | 8.00  |
| Select untested queens.....        | 1.00; 6, 5.00; 12,  | 9.00  |
| Tested queens.....                 | 1.00; 6, 6.00; 12,  | 11.50 |
| Select tested queens.....          | 1.50.               |       |
| Breeding queens, \$3.00 to \$5.00. |                     |       |

Yours for best service,

**The Victor-Knolle Apiary Co.,  
Hondo, Texas.**

## Italian Queens

Northern-bred; originated from best long-tongued "red-clover" breeders in the United States; bred in full colonies; excellent honey-gatherers; winter well, and gentle.

Untested, \$1.00; six, \$5.00. Tested, \$2.00; six, \$10.00. After July 1; 75c, \$4.00, \$1.50, \$8.00. Write for descriptive circular. Satisfaction guaranteed.

**ISAAC F. MILLER,  
Brookville, (R2). Pennsylvania.**

## Boston Headquarters FOR Bees-Queens-Supplies

H. H. Jepson - 182 Friend St.

## Italian Queens of - the - Purest - Strains

I offer this race of queens, bred from select red-clover and five-banded breeders, at the following prices: Untested, 75c; select untested, \$1.00; tested, \$1.50; select tested, \$2.50. I will guarantee safe arrival and satisfaction.

**H. M. PARKER, Jr.  
James Island, South Carolina**

## Italian and Caucasian Queens and Bees



Choice homebred and imported stock. All queens reared in full colonies.

### PRICES FOR JUNE ITALIANS

|                                  |      |
|----------------------------------|------|
| One untested queen .....         | 90   |
| One tested queen .....           | 1.10 |
| One select tested .....          | 1.40 |
| One breeder queen.....           | 2.20 |
| One-comb nucleus, no queen... 95 |      |

Untested queens in May. Safe arrival guaranteed. For prices on quantities, and description of each grade, send for free catalog.

**J. L. Strong, Clarinda, Iowa, U. S. A.**

204 East Logan Street

## Same Old Place

is where you get the best of queens; untested, \$1.00; \$4.25 per 6; \$8.00 per dozen. Tested, \$1.50; best breeders, \$5.00. Absolute satisfaction and safe arrival guaranteed. Carniolans, Cyprians, Holy Lands, Italians.

**The JENNIE ATCHLEY CO.,  
Box 18, Beeville, Bee Co., Tex.**

## Golden and Leather-leaf colored Italian Queens

| MONTHS .....     | BEFORE JULY 1  |         |         | AFTER JULY 1 |         |         |
|------------------|----------------|---------|---------|--------------|---------|---------|
|                  | NO. QUEENS ... | 1       | 6       | 12           | 1       | 6       |
| Untested .....   | \$ 1.00        | \$ 5.00 | \$ 9.00 | \$ .75       | \$ 4.00 | \$ 7.00 |
| Warned. Tested   | 1.25           | 7.00    | 13.00   | 1.25         | 7.00    | 13.00   |
| Tested .....     | 1.50           |         |         | 1.50         |         |         |
| Select Tested .. | 2.00           |         |         | 2.00         |         |         |

Breeders, \$5.00. Caucasian queens will be ready to mail July 1. Untested, each, \$1.00; six for \$5.00. Warrented tested, each, \$1.40; six, \$8.00. We have three yards—two Italian and one Caucasian—and mean to meet the trade. Prices on nuclei on application.

**D. J. Blocher, : Pearl City, Ill.**

## ITALIAN QUEENS

bred from best of honey-gatherers, either three or five banded or Golden races. Untested, 65c each, 3 for \$2.00, 6 for \$3.75, 12 for 7.25; tested, \$1.00 each, 6 for \$5.00, 12 for \$9.00; select tested, \$1.50 each; breeders, \$3.00 each.

**J. W. Taylor, Beeville, Bee Co., Texas**

## QUEENS!!

Now is your chance to get the best of queens. Having caught up with my orders I can send them promptly. Untested Golden, 75c each, six for \$4.25, or 12 for \$8.00; tested, \$1.00 each; three or five banded. Write for circular and prices.

Daniel Wurth, 1111 North Smith St., San Antonio, Texas

## MINNESOTA-BRED QUEENS.

Try our Northern-bred queens—nothing finer; three-banded and golden Italian queens, untested, 75 cts.; tested, \$1.50. Hardy and prolific. We want your orders, and will fill them by return mail, and guarantee safe arrival and satisfaction. Write for circular to **MENNIE & FENTON, Pine Island, - Minnesota.**

## Wants and Exchange.

Notices will be inserted under this head at 15 cts. per line. Advertisements intended for this department should not exceed five lines, and you must say you want your advertisement in this department or we will not be responsible for errors. You can have the notice as many lines as you like, but all over five lines will cost you according to our regular rates. This department is intended only for bona-fide exchanges. Exchanges for cash or for price lists, or notices offering articles for sale, will be charged our regular rates of 20 cts. per line, and they will be put in other departments. We can not be responsible for dissatisfaction arising from these "swaps."

**WANTED.**—Refuse from the wax-extractor, or slum-gum. State quantity and price.

OREL L. HERSHISER,  
301 Huntington Ave., Buffalo, N. Y.

**WANTED.**—You to own good queens; no delays; satisfaction. See my ad. on page 696

M. D. WHITCHER, Los Olivos, Cal.

**WANTED.**—50,000 lbs. beeswax from bee-keepers, to be worked into comb foundation. I need this amount to keep my machinery running. New quarters. Weed process. Fine goods. Satisfaction guaranteed. Foundation for sale, samples on request.

H. F. HAGEN, 1632 Blake St., Denver, Col.

## Help Wanted.

**WANTED.**—Employment by a reliable bee-keeper.  
EDW. MARTIN, Hackett, Ark.

**WANTED.**—Nurses. The Western Pennsylvania Hospital and Eye and Ear Hospital offer exceptional advantages for training. References required. Apply Superintendent's Office, 1945 Fifth Av., Pittsburg, Pa.

**WANTED.**—Man to take charge of an apiary of 150 colonies in western Colorado. Will work on shares or make satisfactory agreement with experienced man.

BENJ. HAMMAR, Rifle, Colo.

**WANTED.**—Man to work with bees. Reply must state age, experience, and wages, to secure attention.

W. HICKOX, Berthoud, Colo.

## For Sale.

**FOR SALE.**—400 colts. pure Italian bees in lots to suit. Write for prices. F. A. GRAY, Redwood Falls, Minn.

**FOR SALE.**—Bees and bee-supplies.  
J. GOBELI, Glenwood, St. Croix Co., Wis.

**FOR SALE.**—40 lbs. Dittmer's light brood foundation, L. size, \$18.00. H. H. PORTER, Baraboo, Wis.

**FOR SALE.**—Bee-keepers' supplies. Root's goods. Root's prices. Free catalog. F. R. DANIELS, 117 Florence St., Springfield, Mass.

**FOR SALE.**—My apiary complete in the great irrigated alfalfa belt; no failure yet. See GLEANINGS of Dec. 15, 1903, page 1051. C. K. C., Lovelock, Nev.

**FOR SALE.**—Queens. I breed a superior strain of fine golden-all-over Italians. Ask for prices.

T. L. MCMURRAY, Ravenswood, W. Va.

**FOR SALE.**—Two female fox-terrier pups, \$3.00 each, or will exchange for supplies or Italian queens. Rural rt.

S. F. HANSON, Iola, Kan.

**FOR SALE.**—The gentle Caucasian bees and queens bred from the best imported Caucasian queens. Italian bees and queens. Write for particulars.

A. E. TITOFF, Ioamosa, Cal.

**FOR SALE.**—The Alexander wire bee-veil. The best face-protector on the market. Try one and be convinced. At 75c each postpaid.

FRANK C. ALEXANDER, Delanson, N. Y.

**FOR SALE.**—About 300 sixty-pound cans; mostly new, good condition, new cases, two cans to a case; 40 cts. per case, f. o. b. Preston.

M. V. FACEY, Preston, Fillmore Co., Minn.

**FOR SALE.**—Untested Italian queens at 60c, two for \$1.00; tested, \$1.00 each. MRS. J. W. BACON,

Waterloo, Seneca Co., N. Y.

**FOR SALE.**—50, or less, 1½-story 8-frame hives, supers, holders, fences, complete (no sections), painted, and in perfect condition; been used one season, good as new; \$1 per hive; changing to 12-frame extracting-hives.

A. W. SMITH, Birmingham, Mich.

**FOR SALE.**—Special sale of sections—Wisconsin basswood—equal to the best, No. 1, \$4.20; No. 2, \$3.70. Root Dovetailed and Danz. comb-honey hives, and all kinds of supplies on hand. Italian queens and bees.

H. S. DUBY, St. Anne, Ills.

**FOR SALE.**—If you want an illustrated and descriptive catalog of bee-keepers' supplies for 1906 send your name and address to FRANK S. STEPHENS, (Root's Goods.) Paden City, W. Va.

**FOR SALE.**—Bees; the right kind, right prices. Safe arrival and satisfaction guaranteed. Ask for illustrated Outfits for Beginners, price list, and our hints on buying bees. MASON SUPPLY CO., Mechanic Fs., Me.

**FOR SALE.**—500 colonies of bees located in the best sweet-clover belt in the U. S. Will take \$1500 for the outfit. Reason for wanting to sell, too much other business. If I do not sell shall want a good man to run them next season.

W. N. CANNON, Greenville, Ala.

**FOR SALE.**—\$5200 fine ten-acre home, steady income; oranges, and 8 cuttings alfalfa a year. Good reasons for prompt sale at this bargain. Just the place for a tenderfoot; for, growing in value rapidly, would re-sell at profit. \$600 more will include profitable bee-ranch.

G. K. HUBBARD, Riverside, Calif.

**FOR SALE.**—150 colonies bees, mostly pure Italians, some good hybrids; free from disease and in strong condition. Will be sold in eight-frame Dovetailed hives at \$2.25 per colony. Other business demands my attention, and I offer my bees at a sacrifice.

F. C. MORROW, Wallaceburg, Ark.

## Poultry Offers.

**FOR SALE.**—Alger's rose-comb Brown Leghorns hold the world's record; first at Chicago International, St. Louis World's Fair, exposition at Portland, Oregon. Italian bees—Root strain direct. Flemish Giant hares, very large. Red Belgians from 16-lb. buck. Get circulators.

FRED ALGER, Waukau, Wis.

## Blacks and Hybrids.

Notices in this column are inserted free, and the publishers assume no responsibility for sales made. We believe, however, that every advertiser will do just as he promises.

**FOR SALE.**—Three hybrid queens for \$1.00.

MRS. J. W. BACON, Waterloo, N. Y.

## BEE-KEEPERS' DEMONSTRATING FIELD MEETING,

Jenkintown, Pa., Tuesday, June 26.

The A. I. Root Company's Exhibition Apiary.  
PROGRAM.

### MORNING SESSION.

PROF. H. A. SURFACE, Presiding.

- 9:30—General social half-hour for introduction, registering, classifying honey exhibits, etc.  
 Inspection of three novel miniature apiaries: Baby Nuclei, Pearl Agnes, Danzenbaker.  
 10:00—General assembling in semicircles under the trees at the foot of the apiary.  
 After outlining the plans of the day, the following committees appointed:  
 Committee on Hotel Entertainment, Judges of the Queen-hunting Contest, Judges  
 of the Exhibits of Comb and Extracted Honey, for awarding prizes.

- 10:30—Demonstration..... PROF. H. A. SURFACE.  
 Transferring a colony of black bees from an old box to a standard hive, with a full explanation to fruit-growers and farmers of the value of the operation in their pursuit.

- 11:00—Demonstration..... FRANK MCGLINN.  
 Showing the use of bee-stings for medicine; their practical application and positive proof of their efficiency; extracting the stings with forceps, and their preparation for medical formulæ.

- 11:15—Demonstration..... By Experts.  
 The way of finding a queen and her tricks, followed by a queen-hunting contest.

- 11:45—Demonstration..... G. M. DOOLITTLE.  
 His methods of grafting larvæ (which have so revolutionized the queen trade), clipping queen's wings, etc.

- 12:00—Lunch and Social Hour.  
 Followed by the inspection of one of Pennsylvania's choice strawberry-patches in full fruit; showing some ten different varieties under cultivation. At the same time there will be a honey eating contest participated in by some little darkies.

### AFTERNOON SESSION.

- 1:00—Demonstration..... W. L. COGGSHALL.  
 Showing his rapid method of extracting honey; uncapping and handling of frames; his method of management of bees, overcoming and subduing robbing, etc. To be assisted by James McNeill, of Hudson, N. Y.

- 1:30—Demonstration..... A. I. ROOT.  
 Showing the Caucasian queens, their habits, and experience of a winter's work in their breeding in Florida.

- 2:00—Demonstration.....  
 Showing the Alexander method of increase, and his cure for bee diseases.

- 2:30—Demonstration..... W. K. MORRISON.  
 Showing a full colony of stingless bees from South America, which he traveled 150 miles up the Oronoco River to procure; giving their history, as well as the relative value of the different races of the bees of the world. Followed by a scientific talk by Dr. McGregor, of Columbia College, giving his experience in crossing the various races of bees of the world.

- 3:00—Demonstration..... N. D. WEST.  
 Showing the use and management of his queen-cell protectors and spiral queen-cages.

- 3:30—Demonstration..... E. L. PRATT.  
 Showing his improved Swarthmore method of breeding queens, nursery cages, incubator hives, caging queens, runing a cupful of bees with a virgin queen in baby nuclei.

- 4:00—Demonstration..... DR. E. F. BIGELOW.  
 Of his celebrated Bigelow educational hive and his latest addition, the Pearl Agnes hive; demonstrating their improved features for a class of students in apiculture.

- 4:15—Demonstration..... DR. HENRY TOWNSEND.  
 One of the oldest city bee-keepers in the United States. He will demonstrate from a roof and give his experience of many years in bee-keeping in the center of a large city.

- 4:30—Demonstration..... HENRY TWINING.  
 Forcing a swarm of bees to alight on the naked arm. Mr. Twining is one of the oldest bee-keepers in this State.

- 5:00—Demonstration..... C. M. CHURCH.  
 Of the latest methods of rearing queens under tent cover.

- 5:00—Demonstration..... GRANT STANLEY.  
 Of the adaptation of the Danz. hive in securing the largest crop of comb honey.

- 6:00—Adjournment and supper.

### EVENING SESSION—MASONIC HALL.

- 7:00—Demonstration..... E. L. PRATT.  
 Under a mammoth cage, explaining the up-to-date method of a vaudeville act about to be presented to the theatrical world, and how bees pay their own expenses outside of honey and wax.

- 7:30—Address..... DR. E. F. PHILLIPS.  
 Dep't Agriculture, Washington, D. C.  
 Giving his experience in the recent research undertaken in the study of foul brood, and the way the United States government can help the bee-keepers.

- 8:00—Moving Pictures..... DR. D. E. LYON.  
 Showing how the interest in the industry had grown and become world-wide, with many laughable scenes, throwing live bees on the screen, etc.

- 8:30—Question-box for the day, and general conference.

- 9:00—Good-night.

Special trains leaving for New York and Washington.

(This program is provisional only. It is presumed that alterations will have to be made, but it indicates the work of the day as far as we can determine at the time of this printing.)

Perfect? What better can you wish? You can now, by use of the  
**PERFECT AMPHLET RESERVER** BIND **Gleanings in Bee Culture** AT A TRIFLING COST!

On the shelf it looks just like a book; holds one number or a volume; as simple as tying a shoe. See it at news, book, or stationery dealers. Ask  
**The A. I. Root Company, Medina, Ohio.**

# GOLDEN Opportunities!

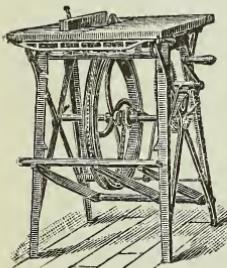
**E**XIST in the South, and the Seaboard Air Line's monthly magazine will point them out to you. If you are thinking of changing your location, engaging in other business, want a winter home, a summer home, or a place for all-the-year-round residence, want an orange grove, a banana plantation, a pineapple grove—in fact, anything, and want it in Virginia, the Carolinas, Georgia, Alabama, or Florida, the magazine will assist you.

Sent free on request, together with other handsomely illustrated literature descriptive of the South and its wonderful resources and progress.

**J. W. WHITE**

**Gen. Indus. Agt., Portsmouth, Va.**

## Seaboard Air Line Railway



### BARNES' HAND AND FOOT POWER MACHINERY

This cut represents our combined circular saw, which is made for beekeepers' use in the construction of their hives, sections, etc.

#### MACHINES ON TRIAL

Send for illustrated catalog and prices. Address **W. F. & JNO. BARNES CO.**, 545 Ruby Street, ROCKFORD, ILLINOIS



### WAGON SENSE

Don't break your back and kill your horses with a high wheel wagon. For comfort's sake get an

#### Electric Handy Wagon.

It will save you time and money. A set of Electric Steel Wheels will make your old wagon new at small cost. Write for catalogue. It is free.

**ELECTRIC WHEEL CO.**, Box 95, Quincy, Ill.



### LAWN FENCE

Many designs. Cheap as wood. 32 page Catalogue free. Special Prices to Cemeteries and Churches. Address **COILED SPRING FENCE CO.**, Box 448, Winchester, Ind.

**FENCE Strongest Made.**

Made of High Carbon coiled wire. We have no agents. Sell direct to user at factory prices on 30 days trial. We pay freight. Catalog shows 37 styles and heights of farm and poultry fence. It's free. Buy direct. Write today.

**COILED SPRING FENCE CO.**, Box 101, WINCHESTER, INDIANA.



## You Need It. . . . .

If you have only a few chickens;  
If you are at all interested in poultry;  
If you are breeding for fancy points;  
If you cater to the market trade;  
If you are in the business on large scale, you need

## Ohio Poultry Journal

the paper published in the interest of the farmer, beginner, and small breeder, with plenty of pointers for the experienced fancier. Each month is especially edited for the needs of that special season of the year. Regular price is 50 cts. a year, but we offer it at **HALF PRICE** for a short time to introduce it to readers of Gleanings. Send only 25 cts. and get it a year; or, if you send us \$1 for a year's subscription to Gleanings in Bee Culture, we will send you Ohio Poultry Journal for a year free.

Address Ohio Poultry Journal, Dept. 14, Dayton, Ohio.

## \$1.00 WILL PAY FOR TEN YEARS!

120 copies and no less than 2840 pages (size 8x11 $\frac{1}{4}$  inches) of valuable poultry, pigeon, and pet-stock reading, costing us thousands of dollars to procure. Also your name and address in the "Poultry-breeders' Directory" for 10 years; revised yearly. Send \$1.00 to-day, and address

Poultry Item, Sellersville, Bucks Co., Pennsylvania

## DO YOU RAISE CHICKENS?

If so, you will find The Poultry Gazette a welcome monthly visitor to your home. A down-to-date, practical, poultry magazine that is the acknowledged leader of all Western poultry papers; ably edited; profusely illustrated. Subscribe now, while the price is only 25 cts. a year. If you have poultry to sell, The Poultry Gazette can sell it for you.

The Poultry Gazette, Dept. B, Clay Center, Neb.

# Save Money on Your **BEE-SUPPLIES**

I ship several cars of  
the celebrated Root  
goods to Kansas City

every year, and save hundreds of dollars for our customers in Kansas, Nebraska, Missouri, etc. Let me save you a few dollars on your goods. Write me at Main Office. Catalog, information, etc., sent free.

Carl F. Buck

**Augusta** - : - **Kansas**

## At St. Louis

A complete line of Root's Bee-keepers' Supplies. Unexcelled shipping facilities for reaching the Middle West.

ADDRESS  
**Blanke & Hauk**  
**Supply Co.**  
202-204 Market Street  
St. Louis, Mo.

ALSO MANUFACTURER OF AND DEALER IN

# Dairymen's and Poultrymen's Supplies

Low freight. . . Prompt shipments.  
Factory prices. . . Write for catalog.

**Send Us Your Order**

# Italian Queens



Untested Queens, 75 cts. each; six for \$4.25.  
Select Untested, \$1.00. . . . Tested, \$1.00.  
Sel. Tested, \$1.25. Breeding Queens, \$3.00.

## Bee-keepers' Supplies

Send for our new revised catalog,  
Root's Supplies are what we handle.  
A full line always on hand.  
We give you prompt service.  
Freight rates are reasonable.

**John Nebel & Son Supply Co.**  
High Hill, Montgomery Co., Missouri

## High Hill, Montgomery Co., Missouri

# THE COLORADO BEE-KEEPER

S THE man we are interested in, whether he has one swarm or five hundred. If you are that man, we are talking to you.

The goods we sell were made in Ohio. You live in Colorado.

The point is this:

We cut out the distance, and bring your goods home to you—and they are Root's Goods too.

Just now we are interested in getting our catalog into the hands of every bee-keeper. It is YOURS for the asking.

Your order to us, small or large, means prompt service and Best Goods.

# The L. A. Watkins Merchandise Company

# BEE-HIVES, SECTIONS

## Every Thing that is Used by Bee-keepers

can be procured of us as cheaply as anywhere, and we know **Our Goods are Superior**, both in material and workmanship, to those of any competitor. **One Trial will Convince You.** That's all we ask. Get our new Illustrated Catalog and Price List. Send for one on a postal card.

The W. T. Falconer Mfg. Co., Dept. B, Jamestown, N. Y.

## CALIFORNIA BEE-KEEPERS!

Mr. A. L. Boyden, Secretary of The A. I. Root Company, spends the first two weeks of July in Southern and Central California. He will call on a large number of Bee-keepers while there. Parties desiring to see him or correspond with him should address him at once San Jose, Cal., general delivery. From July 5th to 8th address him at Los Angeles, general delivery.

The A. I. Root Company.

## Dadant's Foundation It Excels

Every Inch Equal to Sample

Beauty! Purity! Firmness!  
No sagging; no loss.  
Twenty-eighth Year.  
We Guarantee Satisfaction.  
Wax Worked into Foundation.

## Bee-supplies of All Kinds

Beeswax wanted at all times.  
Send for Our 1906 Catalog.

Dadant & Sons, Hamilton, Ill.

## Root Goods for the West

New catalog now ready to mail. Write to-day. Remember I have been in the business over 20 years, and carry the largest stock in the West. Many thousands of dollars' worth of goods now on hand ready for distribution. Why put up with inferior goods when you may as well have the best? They cost you no more. In many cases I can save you money. In all cases I give the most for the money, quality considered. They are the ROOT GOODS, which I sell here at ROOT FACTORY PRICES and DISCOUNTS. My shipping facilities are unsurpassed anywhere. Practically all points are reached by direct lines, thus insuring the lowest freight rates.

Jos. Nysewander, Des Moines, Iowa  
565, 567 West Seventh Street